

GLOBAL WARMING

A Mind Mapper's Guide to the Science and Solutions

Jane Genovese

ABOUT JANE GENOVESE

Jane Genovese is a public speaker, university graduate of Law and Arts (majoring in Psychology) and passionate global warming advocate. She became concerned about global warming after reading an article on Artic Eskimos losing their way of life due to rapid climate change. This motivated her to study Environmental law and International Environmental law at university. Shortly after, she created the “Global Warming: Too Hot to Handle?” workshop and this book with her mother, Sharon. In her spare time, Jane enjoys salsa dancing, watching good documentaries and going to the gym.



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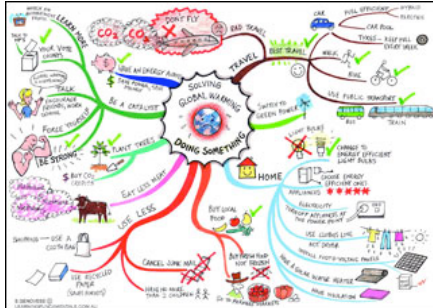
Thanks to Rob and Brenda at Environment House. Their commitment to helping the community live greener and cleaner lives is an ongoing source of inspiration.

I would also like to thank my good friends, Zayd Azmi, Dean Lasslet and Gerald Zeng, for their feedback and help in compiling the book.

This book is for you all.

Jane Genovese

HOW TO USE THIS BOOK



This book contains a series of mind maps. You may be thinking ‘What is a mind map?’ A mind map is a creative way of displaying information, which involves exaggerated images, different colours and curved lines radiating from a central idea.

Why have I bothered to use mind maps? A mind map is an effective way of learning new information. The colours, branches and images stimulate your mind and allow you to remember

information more easily. Mind maps also give you an overview of a large subject area and help you to make connections faster between different ideas.

I know how easy it is to become overwhelmed and confused when reading about climate change, and I don't want this to happen to others. It was never my intention to make fun of this serious topic through the use of mind maps, just to simply illuminate the subject and make it easier for people from all walks of life to understand. That's why I have included mind maps.

As you read this book, start by looking at the mind map at the beginning of each chapter. These will give you the essence of what the chapter is about and the text will then deepen your understanding. If you have trouble understanding any content, I recommend you create a mind map yourself. For a step-by-step guide on how to mind map, visit www.learningfundamentals.com.au/blog/how-to-mind-map

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THE WAKE UP CALL

We are not passive spectators, but active contestants in the drama of our existence. We need to take responsibility for the kind of life we create for ourselves

- Nathaniel Branden, Ph.D.

I didn't care about climate change/global warming up until two years ago. Like many people, I didn't care because I simply didn't know and understand what those terms meant. I was young, caught up in reality TV shows, the idea of making lots of money, the lives of celebrities and gossip. My life was all about me, my friends and family. Beyond those things, nothing else really mattered to me.

My parents were worried. For years they had been developing a stone fruit orchard in rural Western Australia. From this, they earned enough money to pay the bills, feed us and put my brother and I through school. Both mum and dad knew the land well and had developed a strong connection to it. Over the last 12 years they had started to notice changes on the orchard. The orchard dam, which used to overflow regularly by the end of May, stopped filling up in some years, filled up later in other years and now doesn't fill up at all. I would hear them talk about these changes and how they were caused by climate change/global warming, but I didn't think much of it at the time. I told my parents 'Stop worrying! Look on the brighter side of life' and carried on flipping aimlessly through catalogues of discounted clothes and other items I didn't really need.

When I finally was forced to learn about climate change/global warming in an environmental law lecture, I was shocked and felt sick to the stomach. I couldn't understand why the media wasn't constantly shoving this issue in our faces. Why weren't more of us concerned about it? Why wasn't the government taking the scientists seriously? I had to find out more.

The more I read, the more worried I became about the state the world was in. My friends started to get annoyed by my 'doom and gloom' conversations. I asked adults who I looked up to 'What can we do about this?' Many of them responded with 'Not a lot'. So I continued on in a business as usual fashion. In other words, I switched off to global warming. I stopped reading about it. I stopped talking about it. I stopped thinking about it.

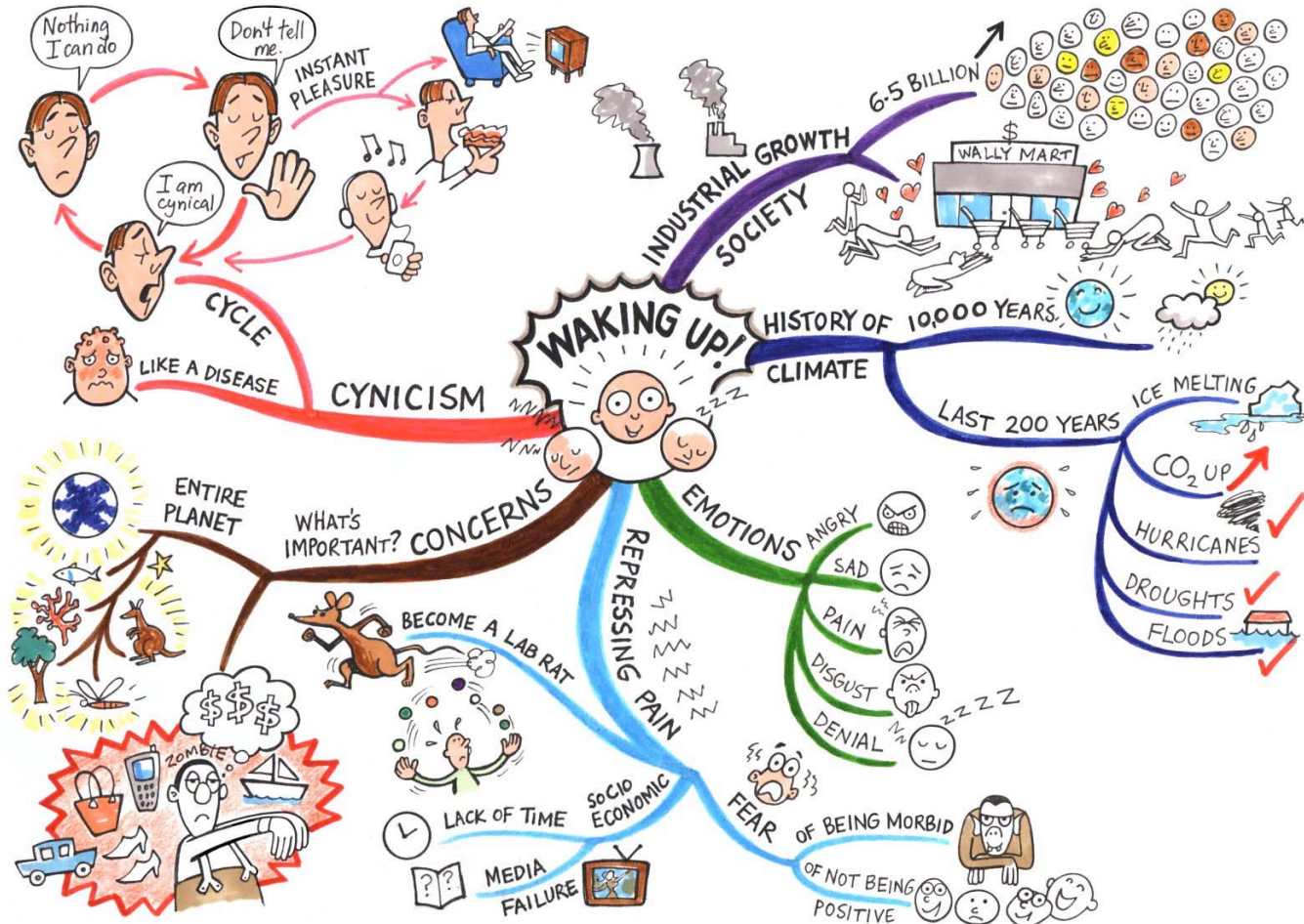
Then Al Gore came along with his movie *An Inconvenient Truth*. Gore summarised wonderfully all the scientific journals I had read over the previous six months. Watching this movie gave me new hope, passion and determination to do something. I started reading book after book on how to make a difference in this area. I soon realised that having the knowledge of how to change the world was one thing, but actually taking action to bring about that change was another thing altogether (this was the challenging part!).

Being a Psychology student I was interested in the different strategies that could help people to start adopting environmentally responsible behaviours. I researched these thoroughly by reading dozens of psychological journals related to behaviour change and soon discovered that most of the strategies were straight forward and easy to apply to my own life.

I started attending conferences and free talks held in my city on global warming and it wasn't long before I was fed up with the boring tones and academic jargon that was being used by many of the speakers. I also read a lot about the science of global warming, however there wasn't much on what the average person could do to combat the problem. When I did read about the things I could do, I was often left feeling overwhelmed with the thought 'It's all too hard'.

It was a struggle for me to find the motivation to try to do something about global warming among all that mass of academic complexities. This is why I decided to write this book so that you don't have to go through such great struggles. This book is about breaking down the overwhelming topic of global warming into plain, simple English, with the use of mind maps. It also shows you that each of us can make a difference and live deeper, more meaningful lives by doing so.

Some of what you are about to read may shock you, challenge you, make you feel angry and sad. You may refuse to believe it at first and indeed it may seem easier and more convenient to deny it. Whatever reaction you have is ok. Remember, you are human. Just know you have done the best you could have done with the knowledge you've had up until this point. There is still time (as brief as it may be) to change and do things differently.





CHAPTER 1 WAKING UP

The frog does not drink up the pond in which it lives.

- Indian proverb

We live in an industrial growth society that worships growth and material possessions. The shopping centre has become the modern church, satisfying our short-term pleasures, keeping many of us numb and cut off from the reality of the world. We all want to be happy and we are told that we can be, but only if we buy the G500 mobile phone for the bargain basement price of \$39.95 (available for a limited time only)! Let's face it, we have become a nation of sleepwalkers, buying goods we don't need to impress people we don't even like! We are obsessed with feeling good all the time and we think the more

goods we acquire the happier we will be. We need instant gratification.



What is to happen to a planet with a population of 6.5 billion (and exponentially growing) all pursuing a materialistic lifestyle? What kind of impact will this have on nature and all of life? The ice-caps are melting three times faster than scientists have ever predicted before. Entire species, cultures and ecosystems are dying. Sea levels are rising. The environment is experiencing destruction on a scale that confronted no previous generation in recorded history. Leading climate scientists have desperately

been telling us that we have less than 10 years to do something or else we stand to lose it all if we don't take immediate action.

Stop for a moment. Look around at the people in your life: your family, friends and the people at your local shopping centre. Look at yourself. Does anyone seem to care? Do you care? Should we even care? The simple answer is yes, we should care. We need to care. It took hundreds of millions of years for the earth to reach a finely tuned balance and in such a short space of time (no more than 200 years) we have taken it upon ourselves to destroy this perfect ecological balance.



How does this make you feel? Angry? Sad? Disgusted? If the answer is yes to any of these feelings, you are not alone. Thousands of environmentalists, scientists, activists and ordinary everyday people feel the same way, concerned and upset over what is happening to our planet. If the answer is no and you don't feel anything (not even the slightest pang of pain or guilt) then my diagnosis is that you have become a sleepwalker mindlessly acting out the commands society has imprinted on you. At some point in your life (along with most people in our society) you became cynical and resigned. The good news is that now is the perfect time to wake up.

When we reach a point where we are more concerned about the latest mobile phone, the lives of celebrities and gossip, accumulating more and more material wealth and the next holiday overseas than with the survival of our entire planet, one cannot help but think 'Something's not right here, something has gone awfully wrong and needs to change'. Now is the time for all of us to really wake up. It's time for a global awakening.



What has gone wrong? How have we ended up in such a disturbing place, acting like zombies in the face of global catastrophe?

Authors Ellis Jones, Ross

Haenfler, Brett Johnson and Brian

Klocke of *The Better World Handbook* say cynicism is the cause of this problem, that humans are trapped in a cycle of cynicism.

What is meant by the term cynicism? Cynicism is a destructive way of relating to the world. A cynical person will see the world as a place that will always be filled with problems and they are convinced that people look out for themselves first and foremost. Glenn Capelli and Sean Brealy in their book *The Thinking Learning Classroom* describe cynics as being both closed off and sneering fault finders of new ideas and opportunities.



Cynicism is the modern day disease,
spreading rapidly all over the world.
Some of the symptoms of this disease
are a lack of passion and excitement,

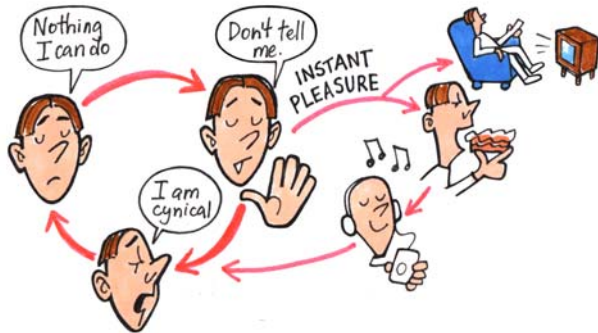
negativity, very little satisfaction and fulfilment in life.

You may contract this disease as follows:

1. You are watching television, reading the paper or just going about your everyday life and you discover a problem in society (e.g. global warming).
2. You think to yourself 'Hang on, this isn't right! I can't believe this is happening. We've got to do something'. You start to wonder 'Can I do anything to help?'.
3. Unfortunately, when no clear avenues for action are presented to you, you begin to think 'I can't do anything'.
4. So naturally, you don't do anything.
5. You feel powerless, sad and angry. You may start blaming politicians and corporations for not doing anything.
6. Eventually you reach the stage where you just accept that there's nothing you can do and at that point, you give up and become apathetic.
7. The numbing of your mind and heart begins.
8. You begin avoiding finding out about these problems (i.e. stop watching or reading the news) because it's only going to make you feel bad or guilty.

What your life then becomes about is making lots of money, driving a nice car, moving up in the world and living it up. You focus on doing irrelevant activities that bring you instant pleasure. But the pleasure doesn't last for long. How many people do you know who live like this? This is how so many of

us in western culture choose to spend our time on the planet and very rarely do we question it.



Don't get me wrong. People have valid reasons for devoting their energies to material consumption rather than doing something about global warming. Shopping can be a fun, social activity whereas reading about global warming and seeing the impact is far from being fun. It's painful. As humans we don't want to feel pain if we can avoid it. According to Joanna Macy, Ph.D., (Eco-philosopher, scholar of Buddhism, general systems theory and deep

ecology) some of the reasons why we repress our pain regarding the state of the environment are as follows:

Fear of guilt: If we are aware about the problems in the world, then we may feel guilty if we know we are contributing to them or not doing anything about them. It is easier and can feel nicer just to sweep things under the carpet and stick our heads in the sand.

Fear of pain: Fundamentally, we are pleasure seeking creatures. We are attracted to situations that we perceive will bring us pleasure and avoid situations that we perceive will bring us pain. We fear that if we allow ourselves to experience pain fully we may lose control and may not be able to cope with life.



Fear of appearing morbid: I have listened to a lot of motivational speakers, many of whom speak about the power of being positive, seeing the glass as half full (not

half empty) and that no one likes to hang around people who are depressing. Often I have left these talks thinking 'I have to be happy and vibrant all the time!' When I read about global warming however, it is incredibly hard for me not to feel sadness and despair. It is really hard for me to feel happy after reading an article on polar bears drowning and facing extinction. In our culture, those who feel anguish and despair are often looked down on. We don't want to be disliked, so we don't engage in and express depressing information.

There are also socio-economic sources of repression of pain. These are:

Lack of time: Many of us live very busy lives, juggling a family, studying and working full time. Subsequently, when we do have some free time, the last thing we want to do is read about global warming and contemplate the fate of the world.



Media: The media has failed us in many ways. Campaigns of misinformation and deception fuelled by the oil and coal industry have confused people on the science of global warming. Many of us think that we are still debating whether global warming exists or not, when in fact that debate finished many years ago! The public is also provided with less information now than 30 years ago due to the strategies of the corporate media owners.



Joanna Macy, Ph.D., also mentions that we have become like laboratory rats.

When lab rats are threatened, they busy themselves in frenzied, irrelevant activities. Humans do exactly the same. Our hearts and minds go numb by repressing our pain and we start buying clothes and shoes made in Chinese sweatshops and we catch planes to exciting, new locations without considering the number of tonnes of greenhouse gases we are emitting in the process.

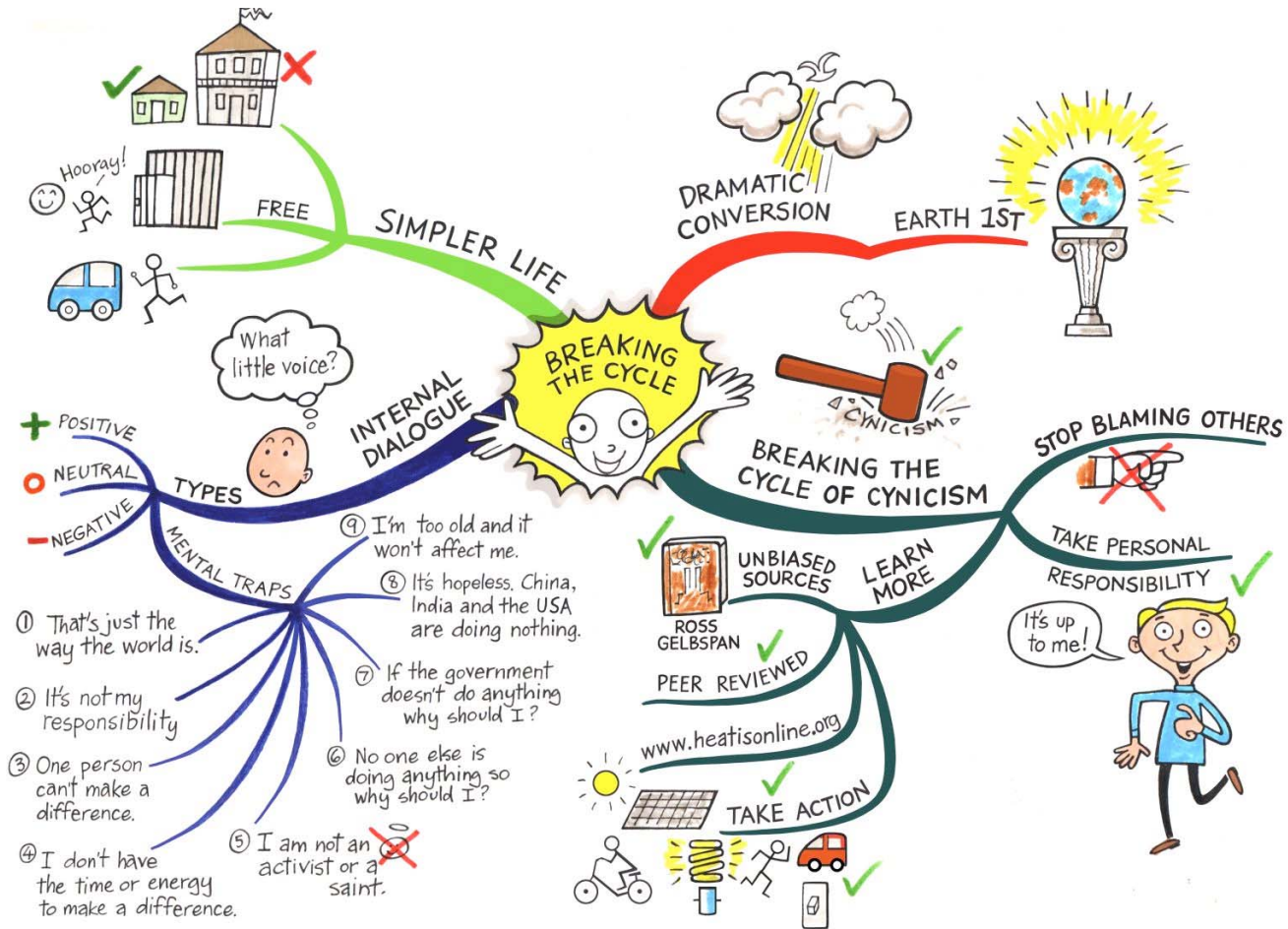
It is important to remember that we are not laboratory rats. We have incredible cognitive capacities, complex emotions and it is crucial that we use them. We need to start thinking for ourselves so we can deal effectively with combating the global environmental problems we are now facing. Thinking about issues such as global warming is highly likely to be upsetting as you may realise things you would

rather not know, but as Winston Churchill once said 'sometimes we have to do what is required'.

It is also healthy and necessary to experience upset and pain. Repressing certain emotions such as pain leads to an overall dulling of your experience of life. The sweet experiences in life would not be so sweet if we never allowed ourselves to fully experience pain.

We are also not stuck in an artificial laboratory separated from the real world. We exist as a part of a bigger system and whether we realise it or not, we have a connection with the natural world, relying on its many hidden services (oxygen to breathe, water to hydrate ourselves, bees to pollinate our food plants, etc).

This isn't a trial run. We only have one shot at this. We can either continue on in a business as usual fashion or make a difference through our daily actions and decisions. If we choose the later, we will be able to look our children and grandchildren in the eye and say to them 'I did everything I could'.



BREAKING THE CYCLE



People need to experience a dramatic shift in the way they think and feel about the environment, similar to a religious conversion.

We need to undergo a conversion from putting money first to the earth first. The cycle of cynicism needs to be broken. How can we do this? *The Better World Handbook* suggests the following practical solutions:

1. Stop blaming others (i.e. politicians and corporations) for doing nothing;
2. Start taking personal responsibility for being the best person you can be in the world;
3. Get a basic understanding of the world's problems from good, unbiased sources;



4. Learn about the practical things you can do to make a difference in the world; and
5. Take the actions you can take.



As you go about taking actions to bring about a better world, your internal dialogue will be saying all kinds of things to you, trying to stop you from making a difference. 'Internal dialogue? What's

that?' you may ask. It's the little voice in your head that has a comment or thought about everything you do and see. The thoughts can be positive, neutral or negative (mostly they're negative). If you still have no idea what I'm going on about, your little voice probably just said 'What little voice?' It's important to understand that what your little voice tells you is just

one opinion and it isn't necessarily the truth. It can sometimes lead you down wrong paths and trap you in destructive thought patterns and behaviours. Watch out for the following negative thoughts (mental traps) your little voice may say to stop you from making a difference in the world:

- *'That's just the way the world is'*

If people thought this way in the past then women would have never got the right to vote and apartheid would still exist in Africa!

- *'It's not my responsibility'*

If you drive a car, catch planes and/or use electricity then that makes you responsible for global warming. All of us need to take responsibility for our consumption and polluting activities.

- *'One person can't make a difference'*

With so much of the beautiful planet destroyed, it's not surprising that many people all over the world have lost hope. Primatologist Dr Jane Goodall said in her speech at *Live Earth* (a 7-continent concert series aimed to inspire global action to solve the climate crisis):

We have to remember that every one of us makes a difference everyday. We can't live through a day without affecting the world around us. If we would all start thinking about the consequences of the little choices we make each day (what we buy to eat, to wear and how we get from A-B) and started adjusting our behaviour accordingly the world would start to change.

Global warming activist, Laurie David, asks 'What if you knew that if every household in

America replaced five regular light bulbs with more energy efficient bulbs, it would be equivalent to taking 8 million cars off the road for a year?' Together all of our small actions can make a huge, collective difference.

- *'I don't have the time or energy to make a difference'*

If I asked you 'What do you value the most in your life?' what would you respond with? Perhaps you might say spending time with family and friends or your health and fitness. If we now take a good look at our daily schedules, a lot of our time isn't dedicated towards the things we value the most but instead on activities that add very little value or meaning to our lives (e.g. watching television and shopping for items we 'think' we need and can't live without). We can reschedule our days to free ourselves up, so we

are no longer slaves to time and irrelevant activities.

- *'I'm not an activist or a saint'*

To make a difference you don't need to have dreadlocks, chain yourself to a tree or be like Mother Teresa. You can be yourself. You can map out your own path to making the world a better place.

- *'No one else is doing anything about global warming, so why should I?'*

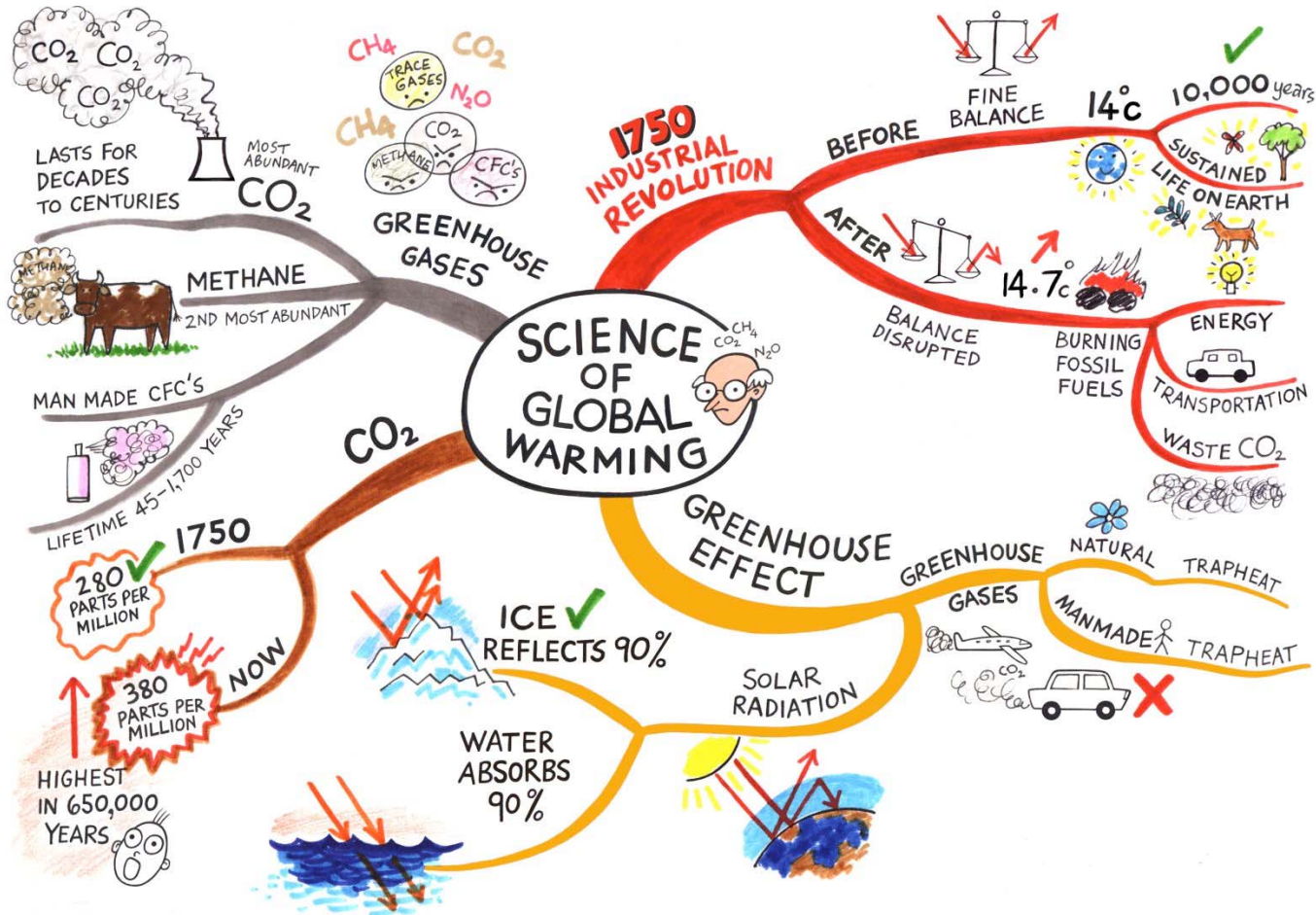
You would be absolutely amazed by all the people who are now doing what they can to make a difference in this area. Installing photovoltaic panels on their roofs, catching public transport, buying green power, writing to politicians and pledging not to fly are just a few of the many things people are doing. Thousands of

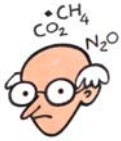
people behaving in ways to reduce their greenhouse gas emissions results in thousands, even millions of tonnes of greenhouse gases not being released into our fragile, thin atmosphere.

You may be thinking 'But I like flying!' or 'I love shopping!'. You may love the consumer way of life and that's ok. I'm not telling you to sell everything and start living like the Amish or a Buddhist monk. But do you really know any other way to live? We have all been conditioned into thinking that the consumer way is the only way and the best way to live, when there are many other ways.

We have a choice and we should choose not to be laboratory rats. Let's wake up from our deep slumber and free ourselves from the cages society has locked us in.





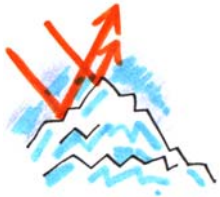


CHAPTER 2

UNDERSTANDING GLOBAL WARMING

We have a brief window of opportunity to deal with climate change...no longer than a decade at the most

- Scientist at NASA, Dr James Hansen



To fully understand what is meant by global warming and climate change the greenhouse effect must first be understood. The greenhouse effect is the process where solar radiation (short wavelength radiation) from the sun reaches the earth's surface where it's converted to heat energy (long wavelength radiation). The majority of sunlight

is absorbed by the earth's surface (landmass and water) and warms it, whilst the rest is reflected by the earth back into space. Polar ice reflects 90% of solar radiation back into space, whereas water absorbs 90% of the energy it receives. In addition, the warm surface of the earth emits long wavelength radiation (infrared) and this is absorbed by the greenhouse gases (a natural as well as manmade part of the earth's atmosphere which have the ability to trap and retain heat) in the atmosphere and re-emitted back to the earth.



Before the industrial revolution in the 18th century, the earth had achieved a fine balance between the energy coming in and the energy transmitted back into outer space. This balance has kept the temperature at an average of 14 degrees Celsius for the past 10,000 years and is responsible for sustaining life on Earth as we know it today.



With the onset of the industrial revolution, humans started to burn increased amounts of fossil fuels such as oil, coal and natural gas to generate heat for transportation, electricity and other energy requirements. This was and still is problematic since a waste product of fossil fuel combustion is carbon dioxide (CO_2). CO_2 lasts for decades to centuries in the atmosphere. Increasingly large amounts of greenhouse gases were and still are being pumped into the atmosphere. New, exceedingly powerful greenhouse gases such as chlorofluorocarbons (CFCs) were also introduced.

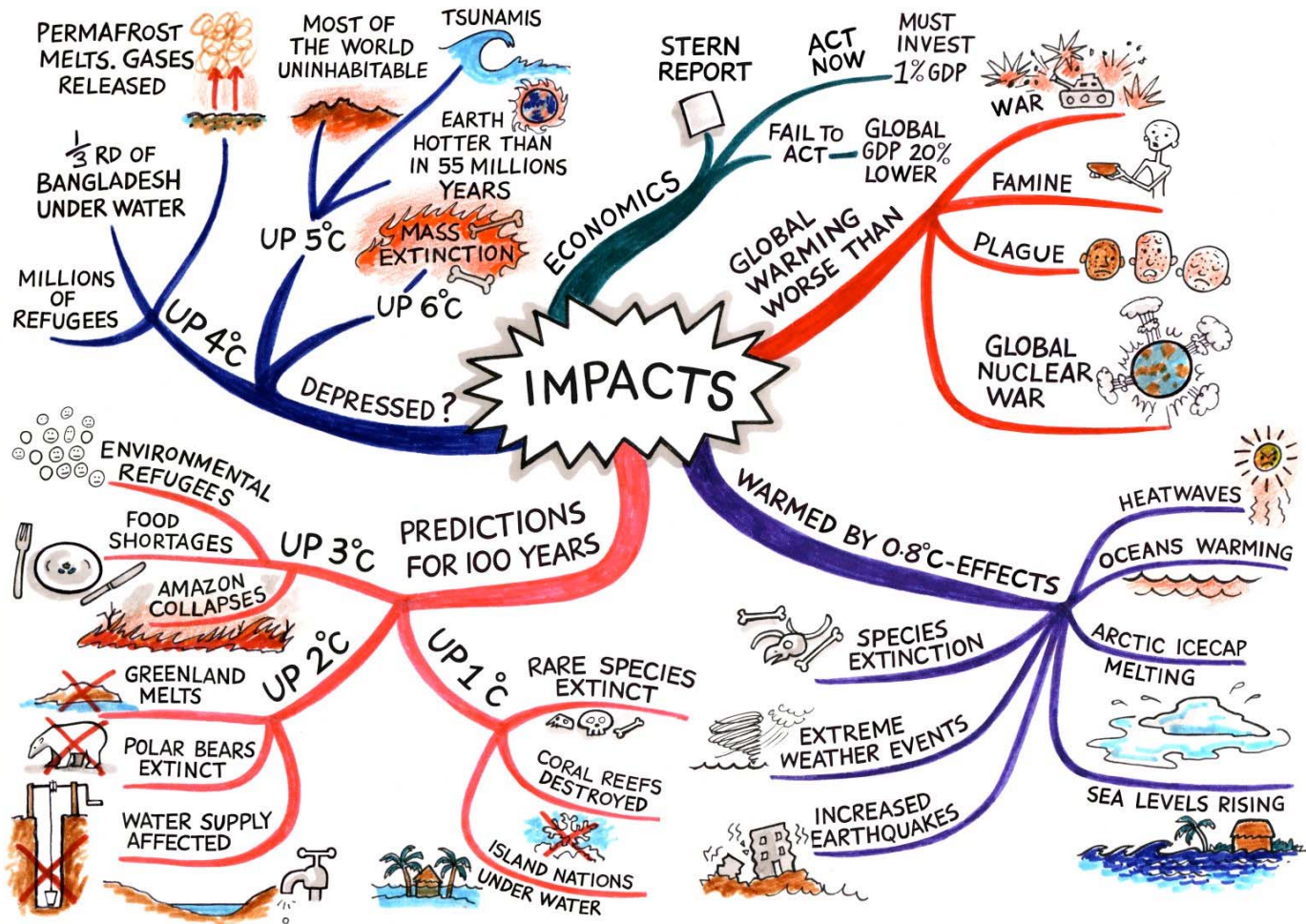


All of these factors have resulted in increased atmospheric concentrations of greenhouse gases. Scientists studying tree rings, corals and ice-cores have been able to precisely calculate the exact percentage of greenhouse gases in the atmosphere over time.

Findings reveal that the main greenhouse gas, CO_2 , has been rising faster than at any other time over the past 20,000 years. CO_2 has increased from 280 parts per million (ppm) in 1750 to the present day level of 380 ppm (most of which has occurred in the last 50 years). 380 ppm is higher than any other time in the past 650,000 years. Concentrations of the second most abundant greenhouse gas, methane (CH_4), have also increased since the pre-industrial era by 150%. Consequently, these increased concentrations have trapped more heat, thereby creating an enhanced greenhouse effect, which has caused the earth's surface temperature to rise.

Due to scientists growing concerns about global warming and climate change, the Intergovernmental Panel on Climate Change (IPCC) was created in 1988 by the United Nations Environmental Program (UNEP) and World Meteorological Organization (WMO). The role of the IPCC is to write two reports every decade on the issue of climate change and it

does so in a rigorous, peer-reviewed fashion (this means the information is reviewed and approved thoroughly by other experts in the author's field before being published). Any controversial research such as the melting of Greenland's ice sheet has been excluded from the reports, which leaves little room for skeptics. Approximately 2,500 scientists appointed by 130 countries participated in compiling the latest IPCC report that concluded the world is warming fast and humans are the cause of this.



IMPACTS ON THE EARTH



Often when people think of catastrophe what automatically jumps to mind are events that occur in an instant such as earthquakes, tsunamis and landslides.

Many people fail to consider categorising global warming as a catastrophe, since the consequences of it take many years to manifest. When the full impact of what has already happened and what is predicted to happen to the earth is properly considered, the reality hits home that global warming will be the mother of all cataclysmic events in history. James Lovelock (creator of the Gaia theory) states 'The catastrophe threatened by global heating is far worse than any war, famine, or plague in living memory; worse even than global nuclear war. Much

of the lush and comfortable Earth we now enjoy is about to become a hot and barren desert'.



Leading scientist at NASA, Dr James Hansen, states the world has warmed by approximately 0.8 degrees over the past century, which is much larger than any of the climate changes experienced during the past 10,000 years. This may seem like a small increase in temperature given the huge variations in temperature we experience daily, but the effect of this overall global warming has been devastating: heat waves, deep oceans warming, the Arctic ice cap melting (three times faster than it had been predicted), sea levels rising (twice as rapidly as had been predicted), species extinctions (three species disappear every hour), increased

earthquakes and stronger and longer storm and flood events have occurred (just to name a few changes).

One only needs to take a look at the weather conditions around the globe over the past few years to see that the world's climate is changing rapidly and becoming more extreme. According to *Munich Re* (an insurance company) extreme weather events have quintupled since 1950. Of the 12 warmest years on record, 11 occurred between 1995 and 2006. 2005 was the hottest year in over a century. Along with these hot temperatures, Australia has consequently experienced some of its driest months and severest drought. In 2007, Northern England experienced a whole month's worth of rain in just a few hours in many places, Southwest Pakistan was hit by monsoon floods affecting 800,000 and Indonesia experienced intense storms which left more than 340,000 homeless. Ukraine experienced their worst drought in a century, which cut crop yields by 60% and resulted in a rapid increase in food

prices. Tokyo (the capital of Japan) had never gone so late without snow in the winter season according to the Japan Meteorological Agency. This is just a snapshot of what is going on around the world (Visit www.heatisonline.org/weather.cfm for an extensive list).

The Facts



The IPCC states that the global temperature will rise by 1.1°C to 6.4°C over the next 100 years (Some scientists such as Nobel Laureate, Paul Crutzen, are now saying that these figures are too low and could rise anywhere between 7°C and 10°C). Scientists predict that with a one degree increase in temperature Mount Kilimanjaro will lose all its ice, rare species will be wiped out in the Queensland (Australia), coral reefs such as the Great Barrier Reef will be largely destroyed and Island nations will submerge under the rising sea levels.

Feeling a little bored or sleepy by reading this?
You're not alone. This information is heavy and can
be hard to take in. Hang in there.



With a two degree increase
Greenland will tip into
irreversible melt (accelerating
sea-level rise and

threatening coastal cities around the world), polar
bears and other species that require a stable ice
platform for survival will become extinct in the Arctic
and shrinking snowfields will threaten Californian
water supplies. George Monbiot (columnist for the
Guardian and Visiting Professor at the School of the
Built Environment at Oxford Brookes University) in
his book *Heat: How to stop the planet burning* states
'Two degrees is the point beyond which certain major
ecosystems begin collapsing. Having, until then,
absorbed carbon dioxide, they begin to release it.
Beyond this point....climate change is out of our
hands: it will accelerate without our help'.



A three degree increase will
result in Perth (my home
town), Sydney and other
parts of Australia
experiencing water

shortages, the world will experience a net food
deficit, the Amazonian ecosystem will collapse and
glacial retreat in the Himalayas means the Indus
River will run dry and millions of environmental
refugees will flee Pakistan.

Feeling depressed? If the answer is yes then you've
probably read enough to get an idea of how serious
the impact of just a one or two degree increase in
global temperature will be. If you realise that we
need to do whatever we can to not go beyond two
degrees in global temperature, you can skip to the
next chapter. For those of you who need further
convincing (or if you have a strong stomach) you can
read on to find out what is predicted to happen with a

four, five and six degree increase in global temperature.



A four degree increase in temperature will lead to a third of Bangladesh being threatened by rising seas and millions will become climate

refugees, all glaciers will disappear in the Alps, further reducing water supplies in central Europe. Permafrost melt in Siberia will release billions of tonnes of greenhouse gases thereby exacerbating global warming.



A five degree increase means the earth will become hotter than any other time in 55

million years and methane hydrate will be released from underneath oceans resulting in tsunamis in coastal regions. In total 180 days of the year will be above 35°C in South Australia and the Northern

Territory. By this stage most of the world will be uninhabitable.

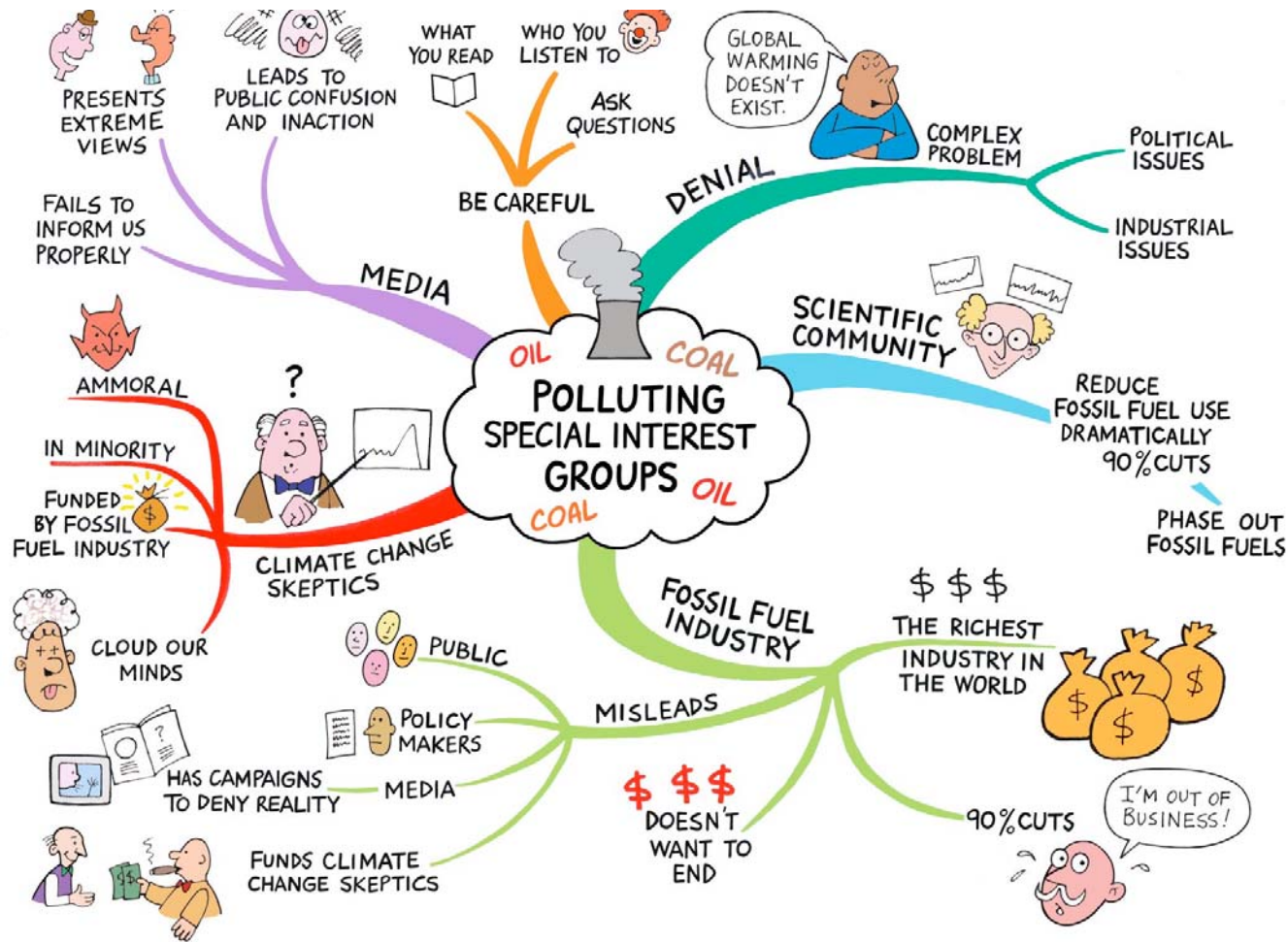


Finally, a six degree increase will lead to the mass extinction of species (90 – 100% loss of core habitat for most Australian

vertebrates). 251 million years ago (the end-Permian mass extinction) there was a temperature increase between 6°C – 8°C degrees. This led to coral reefs dying and 90% of the earth's species being wiped out. This warming may have been due to a series of volcanic eruptions releasing CO₂ and SO₂. George Monbiot states this period gives us an indication of the possible impact this rise in temperature could cause. If six degrees of warming does occur then it is likely human beings will become extinct too.

For some short sighted people none of the above environmental impacts really matter. It's all about the economy. According to the Stern review (a 700 page report on the economics of climate change compiled by British Economist Sir Nicholas Stern) climate change will affect the global economy and could end up costing \$7 trillion. The main conclusion of this report was that if we act now to dramatically reduce our greenhouse gas emissions to avoid the worst effects of climate change then 1% of global GDP (measure of economic activity) per annum is required to be invested. Failure to act could result in global GDP being 20% lower than it otherwise might be. Clearly the benefits of strong and early action far outweigh the economic costs of not taking action.

The science is in and it is painfully clear, global warming is real and it is happening faster than ever predicted. We have a moment to take action. To avoid some of the worst impacts we need to act now to dramatically cut our greenhouse gas emissions.





CHAPTER 3

THE BIG POLLUTERS

It is difficult to get a man to understand something when his salary depends upon his not understanding it.

- Upton Sinclair



Many people and institutions are still in denial over the existence of global warming. This is due to global warming being a complex

problem, which is clouded by deep political and industrial implications. Scientists have concluded that the only way to effectively address global warming is to dramatically reduce our greenhouse gas emissions by 90%. This would mean humans would need to stop using fossil fuels and switch to

renewable energy sources. Ultimately, the fossil fuel industry (the richest industry in the world) would need to come to an end to achieve the reduction that is required.

Not wanting to suffer financially, these industries have deliberately misled the public, policy makers and the media through campaigns of deception and misinformation. Oil and coal companies have poured millions of dollars into promoting the message 'climate change/global warming is uncertain' through the use of groups such as the Global Climate Coalition, the Greening Earth Society, the American Petroleum Institute, the Competitive Enterprise Institute and the World Coal Institute.



The ICE campaign is an example of how far coal and utility companies (National Coal Association, Western Fuel Association and Edison Electrical Institute) are

prepared to go to salvage their profits. A public relations firm created the \$500,000 ICE campaign one year before the 1992 United Nations Earth Summit in Rio de Janeiro. The campaign's goal was to 'reposition global warming as theory rather than fact' through utilising climate change skeptic scientists in broadcast appearances, interviews and newspaper advertisements. The campaign's newspaper advertisements made statements such as 'Some say the earth is warming. Some also said the earth was flat'. Fortunately, the ICE campaign collapsed after it was exposed by various publications (i.e. The New York Times and the Energy Daily).

Even to this day, an abundance of climate change propaganda still exists. On the 18th of May 2006, the Competitive Enterprise Institute launched a series of television advertisements in various U.S. cities in response to major media threats of worldwide climate change. The new commercials, featuring

images of children and glaciers melting and then reforming (played in reverse), make statements such as 'Carbon dioxide: they call it pollution, we call it life' and '...some politicians want to label carbon dioxide a pollutant. Imagine if they succeed – what would our lives be like then?' (Fortunately, in April 2007 the U.S. Supreme Court ruled that CO₂ and other heat trapping emissions are air pollutants under the *Clean Air Act*). Earlier this year, scientists and economists were also offered \$10,000 by a lobby group (The American Enterprise Institute) funded by ExxonMobil to emphasize the shortcomings of the latest IPCC report just after it was released.



Climate change skeptics such as Robert Balling (Professor of Geography at Arizona State University), Richard Lindzen (Professor of Meteorology at the Massachusetts Institute of Technology), Patrick Michaels (Professor of Environmental Science at the University of

Virginia) and S. Fred Singer (Electrical Engineer and Physicist) hold views that are in the minority of the scientific community. Many of these global warming skeptics do not have backgrounds in climatology, fail to source where they get their information from and hold extreme views regarding other areas of science. For example, S. Fred Singer is well known for being skeptical about the connection between CFCs and ozone depletion as well as second hand smoke and cancer.

These skeptical views have been portrayed in Congressional hearings in a way that has created a false portrayal of the climate change issue. A study by McCright and Dunlap examined the number of testimonies delivered by conventional scientists (holding a mainstream view on climate change) and climate change skeptics in congressional hearings from 1990 to 1997. Until 1994 the conventional scientists were outspoken on the issue, with the climate change skeptics presenting only 25% of all

testimonies given by scientists. From 1995 until the negotiations of the Kyoto Protocol in 1997 (An International agreement aimed at reducing countries CO₂ and greenhouse gas emissions) things however changed dramatically. The number of testimonies presented by skeptics and conventional scientists was approximately equal every year, thereby clouding the issue in politicians' minds. For people who had no background information on the science of global warming, it would have appeared to them that the scientific community was split 50-50 on the issue, when in reality the situation was more like a 99-1 split.



Similarly, the media has been responsible for clouding the issue of climate change for the general public by reporting the most extreme views of climate change (those held by climate skeptics), regardless of the fact that the majority of scientists hold views towards a consensus position. This has resulted in

public confusion over the science and state of climate change, which has led to policy gridlock, personal and political inaction.

In summary, be careful what you read or who you choose to listen to on the science of global warming. Always ask yourself the following questions:

- Who is funding or sponsoring this scientist?
Is it the fossil fuel industry?
- Is this person a climatologist (scientist specialising in the Earth's climate)?
- Has their work been peer-reviewed?

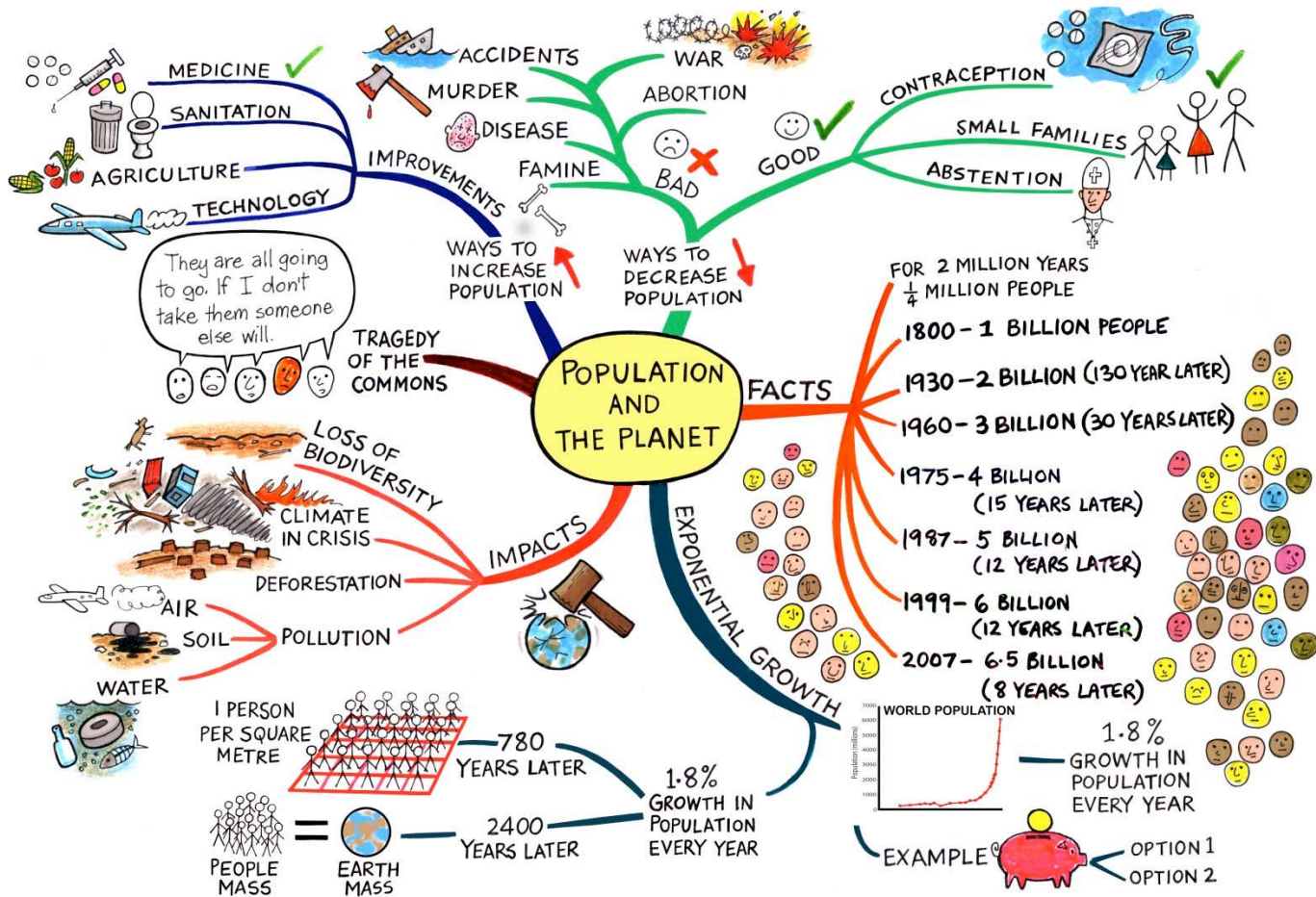
Dr Karl Kruszelnicki states:

You don't get a plumber to build a fence for you, and you don't get a chef to do some plumbing. In the

same way, if you need some surgery, you don't call a pathologist, virologist or an immunologist, you call a surgeon. In the same way the only people qualified to give you opinions on climate change are climatologists and they are of the opinion that climate change is real and that we caused it.

The climate debate has been dominated by a bunch of clowns instead of climatologists for far too long. The clowns are still out there, but it is up to us to recognise them and decide if what they are saying is worth our time and energy. Who would you rather learn from? A clown or climatologist? The choice is yours.







CHAPTER 4

TOO CLOSE FOR COMFORT: OVERPOPULATION.

In the last 200 years the population of our planet has grown exponentially, at a rate of 1.9% per year. If continued at this rate, with the population doubling every 40 years, by 2600 we would all be standing literally shoulder to shoulder.

-- Professor Stephen Hawking

Global warming is a by product of a bigger, more serious issue: overpopulation. One doesn't need statistical proof to see that the world is getting crowded. We can see it clearly in our day to day lives as we struggle to find a parking spot at the shopping centre, wait months for a doctors appointment and

see oceans of new, compact suburbs springing up all around us.

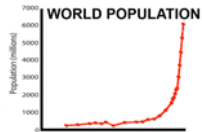
Let's take a look at the facts. For the majority of the two million years of human history, the population was less than a quarter of a million. It took thousands of years (until 1800) for the population to reach the first billion. In 1930 the population reached 2 billion, 3 billion in 1960, 4 billion in 1974, 5 billion in 1987 and 6 billion in 1999. According to the United Nations projections, the population is predicted to reach an astronomical 9.1 billion by 2050. What's going on? Why is our population growing so out of control? The simple answer is exponential growth. Sounds complex? Well, it isn't.



In a nutshell, exponential growth is based on the idea that the larger a number gets, the faster it grows. This principle can be explained by looking at a child receiving his or her

pocket money. The child is given two choices for increasing their weekly pocket money. The first choice is to start with \$1 worth of pocket money and have this doubled every week. The second option is to start on \$5 and have this increase by \$1 every week.

Week	0	1	2	3	4	5	6	7	8
Option 1	\$1	\$2	\$4	\$8	\$16	\$32	\$64	\$128	\$256
Option 2	\$5	\$6	\$7	\$8	\$9	\$10	\$11	\$12	\$13



Option 2 may give you more in the short term, however as you can see in the table above Option 1 eventually will grow

much larger. We may not realise it but what is happening with the simple example of the child's pocket money in Option 1 is what is happening with the Earth's human population (but on a much larger scale).

Imagine that you are reading the paper and the front page states 'Population increases by 1.8% every year'. Would you be alarmed? Probably not. Many of us would think '1.8%? That's nothing!' and we would flip straight through to the sports or comic section. Don't be fooled though. According to Dr Albert A. Bartlett (Professor of Physics at the University of Colorado) this is an alarming figure. If the population was to continue increasing by this amount ever year then it would only take 780 years for the world population to grow to a density where there would be one person per square metre on the dry lands surface.



Stop for a moment. Put this book down and try to picture living in a world like that. Quite uncomfortable? Distressing? It would be like living in a crowded lift that you cannot escape from. How do people react when they are in confined spaces? Some people remain calm and

cool headed, whilst others freak out and reason and common sense go out the door. They do irrational things that not only harm themselves but the people around them. With a population growing exponentially this is what is likely to happen to our planet.



Professor Bartlett also states it would only take 2,400 years for the mass of the people to equal the mass of

the earth (with a 1.8% growth rate in population)! Eventually we would reach a point where people could not go on living with such limited space. Something needs to change and if we don't try to change, mother earth will do it for us.

Hurting the world



Having more people results in a *tragedy of the commons* situation. To explain this concept, let's take a quick look at the overfishing of the fishery.

A fisherman thinks 'If I don't take these fish then someone else will, so I better take as much as I can!', but what then happens is that everyone has this mentality and starts taking as much fish as they possibly can! You end up with a dead, empty ocean with no fish at all. Perhaps Professor Elinor Ostrom's quote below from *Governing the Commons* says it best:

Wealth that is free for all is valued by no one because he who is foolhardy enough to wait for its proper time of use will only find that it has been taken by another...the fish in the sea are valueless to the fisherman, because there is no assurance that they

will be there for him tomorrow if they are left behind today.

The tragedy of the commons situation that is occurring in the fishery is taking place all over the world with other natural resources (i.e. water, forests, exotic species and oil).



Global warming, deforestation, pollution of air, soil and water are the result of overexploiting the Earth's resources to meet the demands of a growing population. More people on the planet means there is less water, food, energy and space to go around. There will be even less finite natural resources to go around in the western world now that developing countries like China are following in our larger carbon and ecological footprints (China recently overtook the U.S. as the world's biggest CO₂ emitter).

Ways to Increase the Population











Why did the population grow so quickly? Improvements in medicine, sanitation and agriculture technology have decreased diseases, produced more food and allowed many people to live for longer

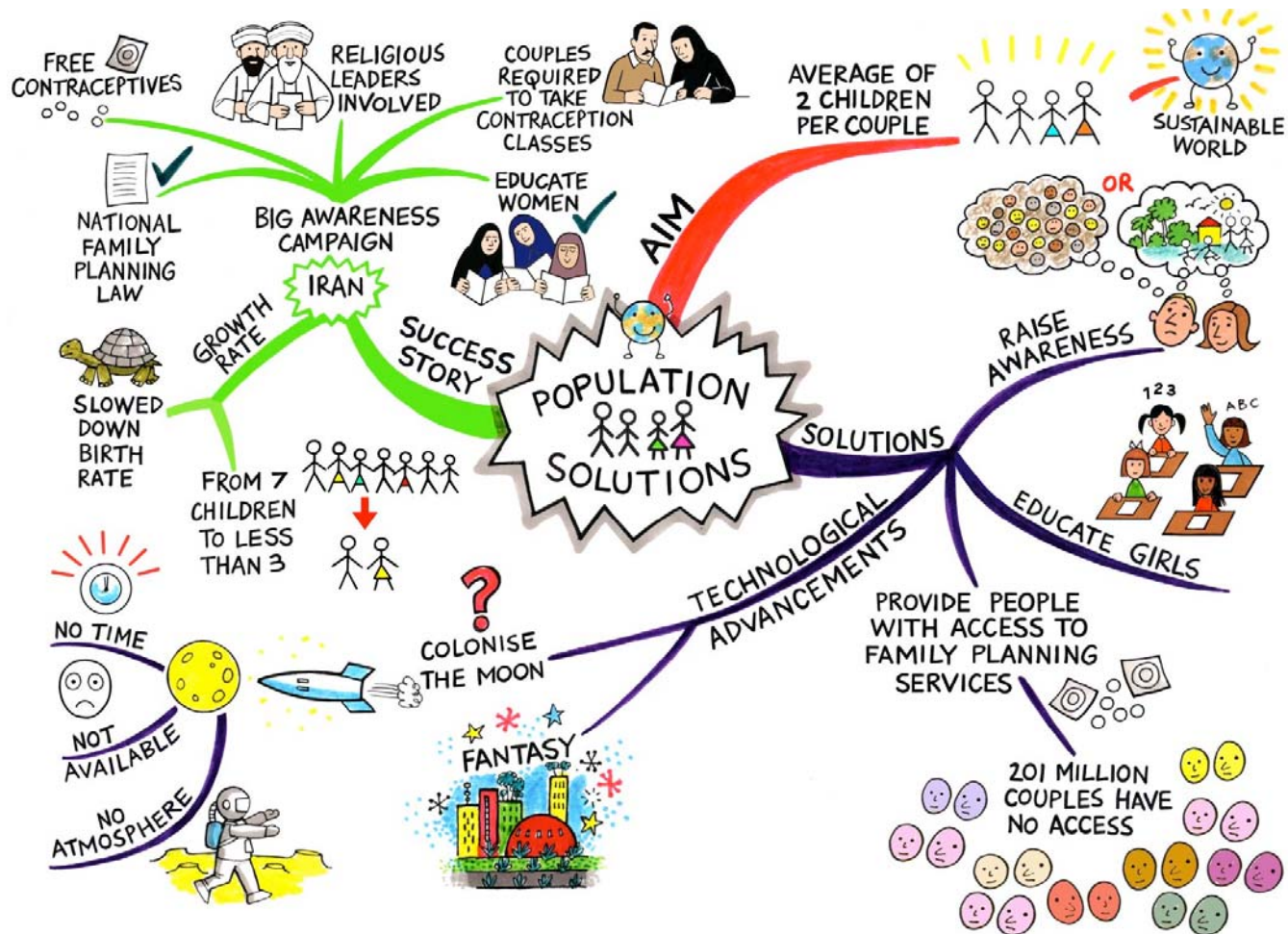
periods of time. For example, the U.S life expectancy in 1900 was 47 years and by the end of the century it was 77 years. Similarly, the average life expectancy in China was 35 years in 1950 and by the year 2000 it had risen to approximately 71 years.

Ways to Decrease the Population

The table below shows some of the bad and good ways to reduce population.

Bad ways	Good ways
 War	 Contraception
 Disease	 Small Families
 Famine	 Abstention
 Accidents	
 Murder	
Abortion	
Genocide	

Each of us has a choice. Some choices have less painful consequences than others. If we don't choose to do something about controlling the exponential growth of the population, nature will make the choice for us and we can expect to experience more suffering (as shown in the left hand column of the table above).



Solutions

Aldous Huxley once said 'Facts do not cease to exist because they are ignored'. Let's face it, the issue of overpopulation won't go away by ignoring it, or crossing our fingers and hoping for the best. It needs to be tackled immediately. How can this be done?



Education appears to be the answer. Dr Albert A. Bartlett says people must first be educated to realise that our current rate of population

growth and consumption of resources is not sustainable. Educating girls also seems to have promising results and appears to lead to smaller families. Economist, Gene Sperling, stated in a study of 72 countries 'The expansion of female secondary education may be the single best lever for achieving substantial reductions in fertility'.



Providing people with access to family planning services can also reduce the population. 201 million couples currently don't

have access to the services they need to reduce the size of their families. The United Nations predicted that if they did have access to the required family planning services then 52 million unwanted pregnancies, 22 million induced abortions and 1.4 million infant deaths could have been avoided.

Could technological advancements save us?

After all, some technology optimists have talked about colonising the moon and other planets to



create more space for us here on Earth! Unfortunately, this technology isn't available to us right now and we have run out of time. We need to

carefully examine the allegations made by

technology optimists who assure us that science and technology will always be able to solve all of our problems.

Population Success Story

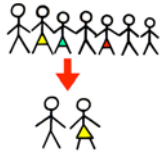
I have worked at several religious schools that speak of children being a 'gift from god'. Subsequently, the average family will comprise of five or more children at these schools. Religion aside, if you talk to your average person about the one child policy in China they will express outrage. 'How dare they take away the human right to give birth! That is just inhumane' they may say. The Australian government even provides a \$4,000 incentive for women to give birth! One can start to see how emotionally charged and difficult tackling the population issue can be. Trying to decrease the population is a huge challenge that can seem impossible at times.

Reducing the population to ensure a sustainable planet can however be successfully and humanely achieved. Iran is living proof of this. Lester R. Brown in his book *Plan B 2.0* discusses how Iran dramatically dropped its population growth rate from being one of the world's fastest to one of the lowest in the developing world. In 1967 the Shah had put in place family planning programs but when Ayatollah Khomeini assumed power in 1979 these programs were quickly dismantled. Khomeini began advocating for larger families to increase soldiers for Islam (with the goal of having 20 million). The result was Iran's population growth rate reached its peak in the 1980's and this started to have a negative impact on the environment, economy and unemployment.



Leaders also started to wake up to these problems and the overcrowding in Iran. In 1989 the government restored the family planning program, in 1993 a national family planning

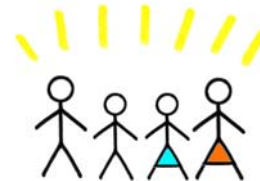
law was passed and Iran broadcasting was made responsible for raising awareness of population issues as well as the availability of family planning services. Religious leaders also got involved in promoting smaller families. Contraceptives were made free of charge. Couples were required to take a class on modern contraception before receiving a marriage licence. Iran also started an effort to educate women. Female literacy rose from 25% in 1970 to more than 70% in 2000.

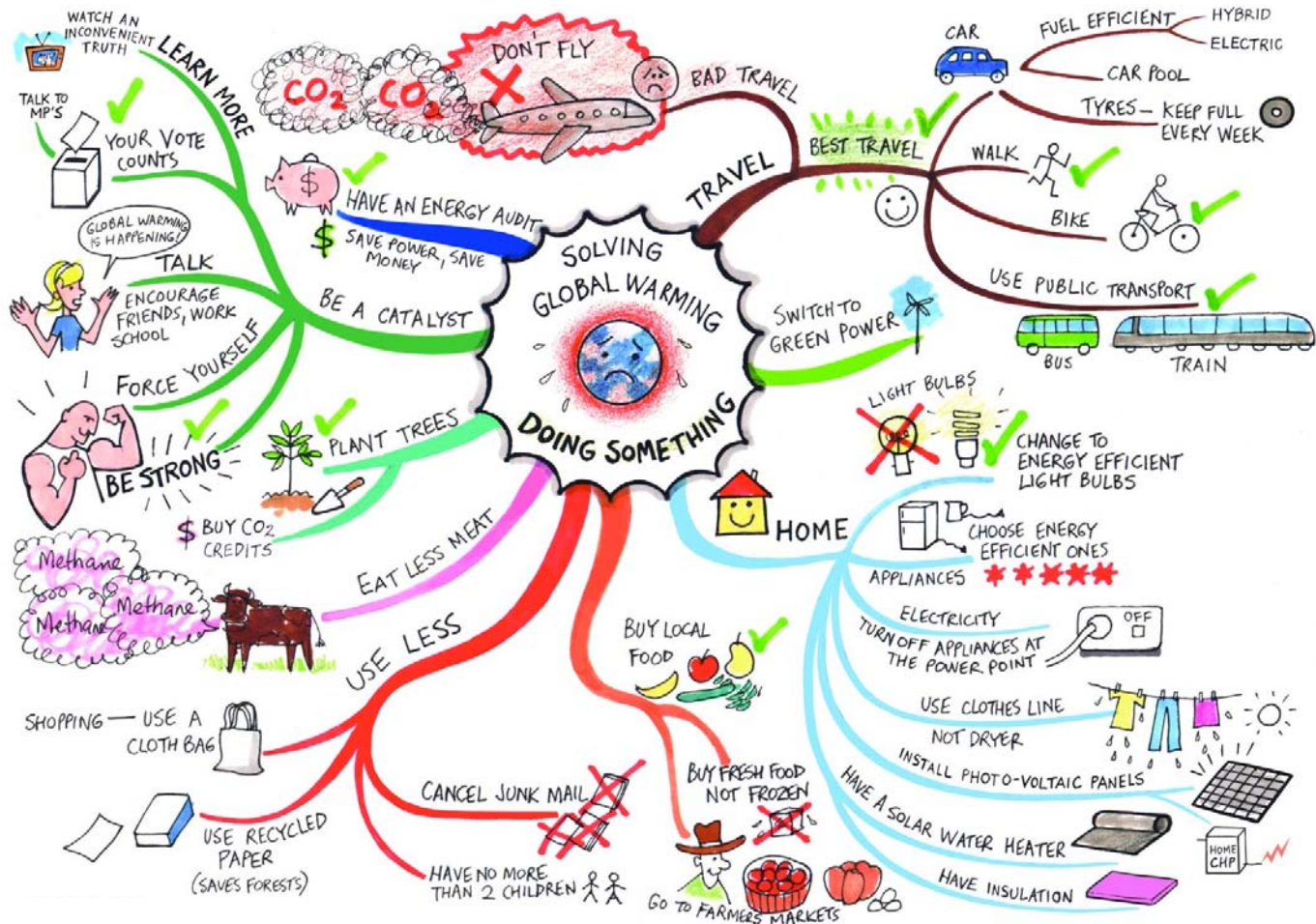


The result of all of this was a typical Iran family dropped its size from 7 children to less than 3. Between 1987 and 1994 Iran cut its population growth rate by half. The

important thing to note here is that if a country based on a tradition of Islamic fundamentalism can do this, then any other country can do it too.

Countries everywhere have little choice but to aim for an average of two children per couple. The earth simply cannot support any more than this. If we are serious about doing something about climate change, we need to tackle the big issue of exponential population growth. If we choose to ignore it, our actions will be equivalent to crossing our fingers and hoping for the best (business as usual).







CHAPTER 5

YOU HAVE THE POWER!

It is time for us to stand and cheer for the doer, the achiever, the one who recognizes the challenge and does something about it

- Vince Lombardi

Global warming seems like such a huge problem that it's easy to feel helpless, but in fact there are many things we can do on a personal level to help. A lot of them don't cost much and many will end up saving you money. Perhaps most importantly, we need to change our attitudes and behaviours and that's not as hard as you think.

Besides, if we don't rise to the challenge, climate change will force our hand anyway (most likely in ways we won't like). The Stern report says that the cost of global warming could reach up to 20% of world GDP if we don't act. The time for action has come. It doesn't mean we have to experience sharp cuts in living standards but it does mean that we have to live smarter and grow in a different way. More of the same is definitely not better.



We can start by informing ourselves. Watch Al Gore's movie *An Inconvenient Truth*. Some people aren't open to watching this movie because they feel there is a political agenda behind the film. Climate scientists have however stated that Al Gore has presented the science of climate change exceptionally well.

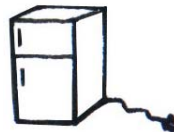


Whenever you turn on a light, use the microwave or drive a car you are releasing greenhouse gases into the Earth's atmosphere. This

is because most of the energy required to power these objects comes from the burning of fossil fuels. By using more energy efficient appliances you can use less energy to do the same things, save money and reduce your greenhouse gas emissions at the same time. Many measures need none or little up-front money (e.g. installing energy efficient light bulbs), but others need more (e.g. replacing an electric water heater with a solar water heater). There will be a payback time before the savings overtake the initial cost (just as in any other investment).

An energy audit (evaluation of energy consumption) on your home or workplace will help to prioritise the best ways in which you can save energy. Using energy-efficient light bulbs and appliances, turning

things off at the power point when not in use (10% of Australian household electricity is used by standby power), using a good old-fashioned clothes line rather than a drier and installing insulation, all cut energy use. Please note that compact fluorescent light bulbs (the energy efficient ones) contain a small amount of mercury (approximately 5 mg), and therefore need to be disposed of properly. 'Are they dangerous to use?' you may be thinking. When you consider that coal fired power plants release 40% of the mercury emissions in the U.S., we are better off installing energy efficient light bulbs.



One of the most energy-hungry appliances in the home is the fridge. In Melbourne (Australia), the 'Phoenix Fridge' project

(www.phoenixfridges.com.au) retrofits old fridges to make them more energy-efficient. The savings are two-fold. The house saves on energy and greenhouse gases, but the factories also don't need to use

energy to manufacture a whole new fridge. There is also no need to use energy disposing of the old one. You can find out the energy consumption of many electrical appliances online (www.energyrating.gov.au for Australians and www.energystar.gov for Americans).



Installing enough grid-connected solar photo-voltaic (PV) panels could make your house mostly energy self-sufficient and will

greatly reduce your households greenhouse gas emissions. In the latest Australian federal budget the solar PV rebate has been doubled to AUD\$8 per watt (up to a maximum of AUD\$8000) and schools and community groups can now apply for a grant of up to 50% of the cost of a solar power system. There are also many new technologies on the horizon. An example is 'sliver cell' technology that promises to reduce the cost of solar PV systems.



By the laws of thermodynamics, all fossil fuel based electrical generating systems have a limited efficiency (often only around 35%) and inevitably make waste-heat as well. Usually even more energy must be wasted to remove this heat with a cooling system. Combined heat and power (CHP) systems (also called co-generation) utilise the heat instead, thus improving efficiency and saving energy. This is impractical with electricity provided from huge remote power stations. CHP systems can be used on an industrial, commercial or household scale. If more electricity is produced than needed, it can be sold back to the grid, cutting the pay-back time.



One of the most cost-effective ways to reduce household energy is to install a solar hot water heater. These save so much energy that they often pay for themselves in less than two years.

If you are building a new home, or renovating an old one, incorporate passive solar design. Tips can be found at:

www.greenhouse.gov.au/yourhome/technical/fs10.htm



A phone call may be all it takes to switch to some form of 'green power'. These are schemes set up by electricity suppliers whereby they guarantee that the energy you use will be sourced from a renewable energy generator which is less polluting. If 100% of electricity users choose green power, then the supplier must source 100% of its electricity from renewable energy generators. For a typical Australian house using about 6,700 Kilowatt-hours per year, the extra cost of green power is no more than about AUD\$5.50 per week. That's a muffin and a cup of coffee! You can easily find utilities offering green power in each state

(www.greenpower.gov.au in Australia and for people in the U.S.A.:

www.eere.energy.gov/greenpower/buying/buying_power.shtml).



Homes aren't the only greenhouse gas producers. Every litre of petrol you use driving your car releases 2 Kg of greenhouse gas into the Earth's atmosphere. By keeping your car tyres well pumped up, you will improve fuel consumption and save money at the same time. If possible, make your next car a hybrid or an electric vehicle (EV). Currently the only models available in Australia are expensive, but expect this to change in the next few years. Don't think that EVs are all turtles either. The Tesla Roadster EV (www.teslamotors.com) in the U.S. can drag off a Ferrari.

Some service stations have begun to offer fuel blends with some fraction of biofuel in the mix. There is much debate however over whether biofuels are

really greenhouse friendly, or even ethical, as carbon-storing rainforests may be trashed and food crops replaced to grow biofuel crops instead (www.biofuelwatch.org.uk).

Car pooling is a good way to reduce your car use and make friends at the same time. Better yet, leave your car at home and walk, cycle or use public transport. They all save on energy use and provide exercise. My friend even passed a university unit solely by reading and doing his assignments on the bus!



It is important to realise that air travel has a huge effect on the atmosphere and

natural environment. Aviation emissions have 2-4 times more global warming effect than CO₂ from the same amount of fuel used by a road vehicle. A return flight from my city Perth (Western Australia) to Sydney emits approximately 2.4 tonnes of CO₂ per

passenger and a return flight from Perth to South America emits 10.2 tonnes of CO₂ per passenger. That's a lot of CO₂ when you consider that the average Australian household emits approximately 14 tonnes of CO₂ a year! The bottom line is avoid plane travel wherever possible. If you really have to, some airlines are currently offering a carbon offset scheme. Carbon offsets let you purchase activities (i.e. planting trees) that actively reduce global CO₂ emissions. Subsequently, this balances out your personal emissions.



Buying fresh local food (perhaps directly from farmers markets) can cut the amount of

fossil fuel used in transport and refrigeration. But where can I find a farmers market? There are sites that are designed to help you locate them (www.localharvest.org in the U.S., www.farmersmarkets.org.au in Australia and www.farmersmarkets.net in the U.K.). Better still, you could even start to grow your own

fruit and vegetables.



A surprising fact is that by simply eating less red meat, we can each save a lot of

greenhouse gases. Going completely vegan can save more greenhouse gases than using a hybrid electric car. The reason is that livestock belch out methane and nitrous oxide (both potent greenhouse gases). Large quantities of energy are also required for food processing and to grow feed crops.

The table below shows the amount of carbon dioxide (Kg) that is emitted per kilogram of food.

Type of Food (1 Kg)	CO2 Emitted (Kg)
Fresh local fruit and vegetables	0.6
Dried fruit and nuts	2.4
Chicken	3.5
Beef and Cheeses	12.0

What impact does a cheeseburger have on the planet? Jamais Cascio (co-founder of www.worldchanging.com) calculated that every time you buy a cheeseburger from a fast food outlet you are emitting anywhere between 3.6 Kg and 6.1 Kg of

CO₂. This is due to all the processes that were involved to get the burger in front of you (clearing the land for the cattle, growing the feed for the cattle, storing and transporting the components as well as cooking and packaging). In America, the greenhouse gas emissions arising every year from the production and consumption of cheeseburgers is roughly the amount emitted by 13 million SUVs (Sport Utility Vehicle). Cascio's calculations show us that every action we take (even the smallest ones) can have unexpectedly profound consequences.



Everything we use takes energy to make, so reduce, re-use, and recycle as much as possible. Recycling many metals and plastics uses less energy than to make from raw materials.

Every year 500 billion plastic bags are distributed. Most of this plastic can take up to 1000 years to breakdown and just ends up in landfills that emit harmful greenhouse gases. The solution is simple,

use a cloth bag for shopping instead of the plastic throw away bags and if you don't need it in the first place, don't buy it.



Forests store huge amounts of carbon (a tree can store up to a tonne of carbon dioxide over its lifetime), but the world's rainforests

and old growth forests are being trashed at an alarming rate. Deforestation accounts for 20% of global carbon emissions (this is substantially due to fires lit in forests to clear land). According to the World Bank, forested areas equivalent to the size of Portugal are being cleared each year. This must be stopped. You can help by using recycled paper (each tonne purchased saves 4,400 kWh of energy, 30,000 litres of water and 19 trees) and buying timber only from accredited sources. You can also help nature suck back some of the carbon released by planting trees.

If some activity (i.e. driving a car or heating a home) does release carbon, then maybe it's possible to pay someone elsewhere to save or soak up the equivalent amount, making the activity carbon neutral. This is the idea behind carbon credits. Care must however be taken that the credits purchased really do lead to a reduction in emissions. Make sure the carbon credits are certified by a reliable authority. Gold standard accreditation (www.cdmgoldstandard.org) is an internationally recognised benchmark for carbon credit schemes. There are other greenhouse gases and they should be included in the accounting. Buying credits should also not be seen as an excuse to avoid concrete actions that will reduce your energy consumption.



Ultimately, the more people there are, the more greenhouse gases will be added to the atmosphere.

As mentioned previously, we need to limit the number of children we have to two or less.

This is particularly important in countries like Australia, Canada and the U.S. as we generate more greenhouse gases per person than anywhere else. Promoting access to education, job opportunities and family planning (especially for females) can reduce birthrates worldwide. You can help people around the world to develop sustainably without leaving your home by volunteering at www.nabuur.com. This website links you directly with people around the world who need assistance (local people tell you what they need and you give them help from behind your computer). According to World Bank estimates, around US\$84 billion per year (0.2% of world GDP) is needed to tackle malnutrition and give a primary school education to every child on earth. In comparison, the Iraq war has cost approximately US\$456 billion, or over US\$100 billion per year. The current world military budget is around \$US1 trillion per year. Imagine what would be possible if even one tenth of this money was redirected to educate young

people, produce contraceptives and create family planning programs.



Spread the word and start talking to your friends, neighbours, workmates and anyone else you know about climate change. Sustainability consultant Ben Rose says:

Avoid people who are negative, cynical or apathetic as they will waste your energy. Always work with proactive, positive people; they in turn will influence their proactive friends and social contacts. I always try to work with and surround myself with proactive, positive people. It spreads like ripples on a pond.

Contact your politicians, planners and media outlets. Our leaders need to know what we want and that we care. Make them feel the heat! Writing many short

letters with one or two points each is more effective than one long, complicated letter. You can also call up and ask to speak with your local political representative. If you are nervous about doing this, call their office after hours and leave a short voice message on their answering machine that expresses your concerns about global warming. Speak out and be a catalyst. It will make a difference.



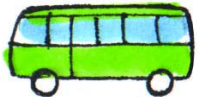
Why else should you consider making the changes discussed above? In the words of Ben Rose,

This change of lifestyle is healthier, less stressful, more joyous and more dignified. It's also more free of the influences of advertising, fashion, meaningless competition and having to earn more money to get more things.

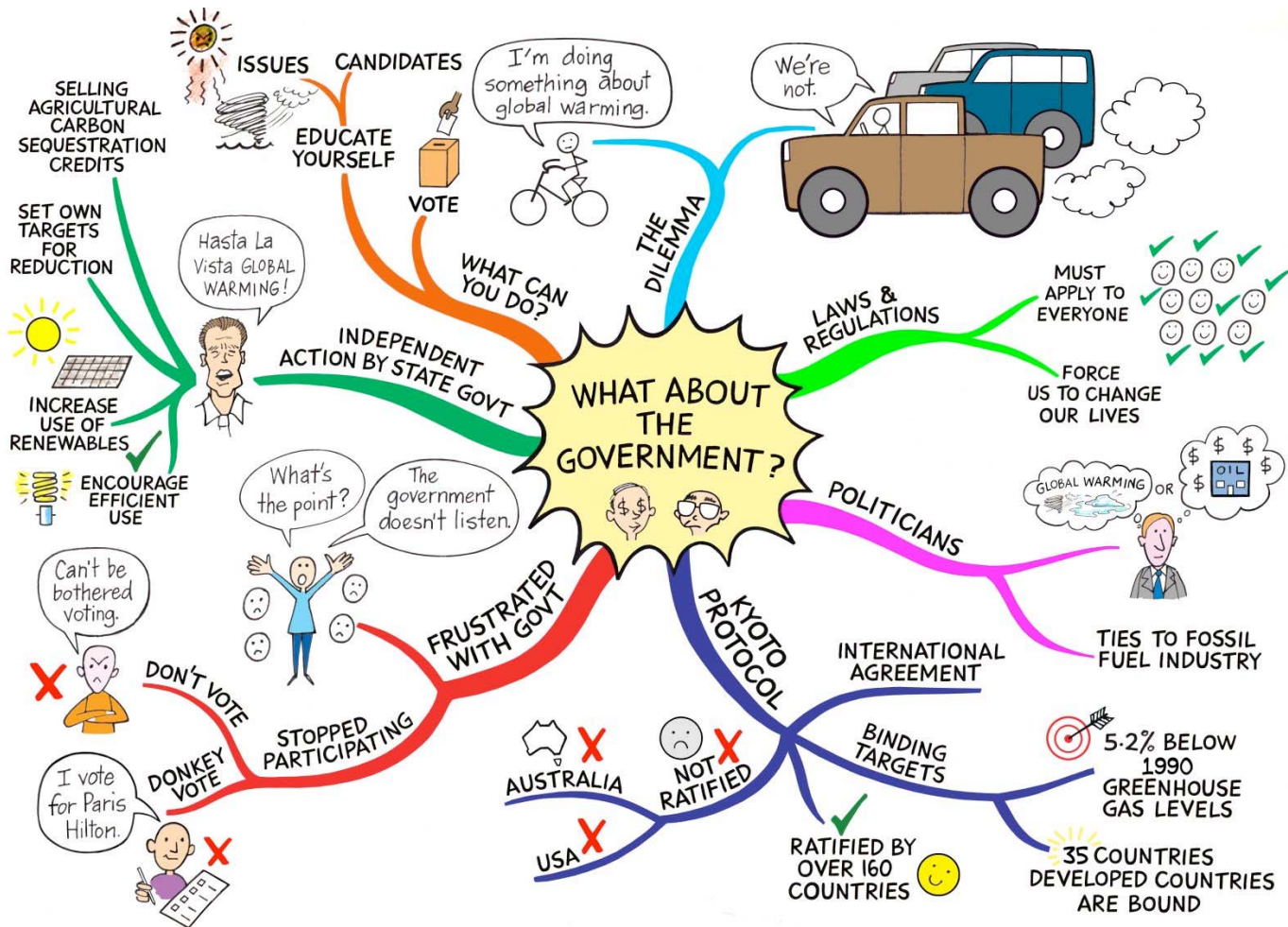
In addition, how can we keep our dignity if we know our lifestyle is contributing to destroying our beautiful world? It would be really hard for me to look my future children and grandchildren in the eye and admit to them that I knew all my overseas trips and large cars were destroying the fragile atmosphere and planet. That I knew I was robbing them of their quality of life but I continued to do it anyway because it felt great and I wouldn't be around to face any of the major consequences.



One thing is certain, if we act now to put the brakes on climate change, we can look forward to the future with excitement rather than fear. Don't ever let anyone tell you that you can't make a difference. All of us can make a huge difference if we are willing to change our consumption habits and tell others about global warming/climate change.



My family and I have changed our lives. We now live better and are happier with less. This year mum, dad and I pledged not to travel by air (therefore now take more holidays within our beautiful state of Western Australia), we catch public transport (this means I get to enjoy reading more often), we work less hours because our lives are now about more than just acquiring material possessions.





CHAPTER 6

WHAT ABOUT THE GOVERNMENT?

You can't hit a target you cannot see, And you cannot see a target you do not have.

- Ziq Ziqar



George Monbiot in his book *Heat* asks 'What is the point of cycling into town when the rest of the world is thundering past in monster trucks?' and 'Why bother installing an energy-efficient light bulb when a man in Lanarkshire boasts of attaching 1.2 million Christmas lights to his house?' Whilst I am a firm believer that every little

action makes a difference, the climate crisis has reached a point where it demands much more than tokenistic actions. If we are to reach the 90% cuts in our emissions that are required (and what science demands), the government needs to create laws and regulations that force all of us to change the way we live and the way we do business.



Vested interests within the fossil fuel industry and industries that can't survive without fossil fuels as well as short-term political vision

have limited and constrained political action regarding climate change. The White House is a clear example of this, where the U.S. President George W. Bush has links to running a number of oil companies including Arbusto Energy, Spectrum 7 and Harken Energy Corporation. Secretary of State, Condoleezza Rice, sat on the board of directors of Chevron (a corporation engaged in every aspect of

the oil and gas industry) and the Chief of Staff from 1993-1998, Andrew Card, was the former president of the American Automobile Manufacturers Association (just to name a few vested interests).

George W. Bush has placed representatives of polluting industries or environmental skeptics in charge of nearly all the agencies responsible for protecting America from pollution. For example, Mark Rey (a timber-industry lobbyist) was appointed to oversee the U.S. Forest Service and Elizabeth Stolpe (a former lobbyist for one of America's worst polluting industries) is an associate director on Environmental Quality. It is therefore of no surprise why the American Federal government has failed to take serious action in this area.

The Kyoto Protocol (an international agreement that created binding targets on developed countries to reduce their greenhouse gas emissions) was created and negotiated in 1997 and entered into force in



2005. Kyoto aims to reduce CO₂ and other greenhouse gases by 5.2% below the 1990 greenhouse gas levels between

2008 and 2012 (Developing countries are however exempt from this). Of all the countries that have ratified Kyoto (over 160) only 35 are legally required to stick to their specified targets. Australia and the U.S. are the only two major countries that have refused to be bound by Kyoto's restrictions. They refuse to ratify Kyoto for the following reasons:

1. It would have a negative impact on the economy;
2. The Kyoto Protocol is inequitable as it does not require developing countries such as China and India to fully participate; and
3. The emission targets are arbitrary and not based on science.

It is true that the emission reduction target of 5.2% is not based on science. Science is demanding 90% cuts in emissions! So, where are we headed if our government can't even commit to a 5.2% reduction? What kind of message does this inaction send to countries like India and China?



It is no wonder that many of us are frustrated with governments and have stopped participating and/or taking an interest in the political process altogether. It

is easy to feel that the rich and powerful interests overpower our voices and that there is very little point in speaking up. Never assume that your vote and voice doesn't count. The 2000 U.S. Federal Election clearly proved that every vote does count with only 537 votes determining who became president. We have reached a point where our

engagement in the political process is more important than ever before.

Fortunately, several states and grassroots action groups have been proactive and are doing what they can to combat climate change. Many U.S. states have set their own targets to reduce their greenhouse gas emissions through increasing their use of renewables, selling agricultural carbon sequestration credits, and encouraging efficient energy use.



California (the 6th largest economy and the 12th largest source of greenhouse gas emissions in the world) is an example of one U.S. state that has set its own targets to cut greenhouse gas emissions. Scientists and economists in the state of California reported that if California continued on in a business as usual

fashion regarding global warming, it would suffer from 30% to 90% less drinking water, more wildfires and risks to agriculture in the near future. Based on these alarming findings, the California legislature enacted tough new laws (*The Global Warming Solutions Act*) that impose a cap on greenhouse gas emissions. Major industries in California will be forced to cut their output of greenhouse gases. California's target is a 25% cut in greenhouse gas emissions by 2020 and it is hoped that their efforts will inspire other states and the Federal Government to follow in their low carbon footsteps.

The Portuguese government has become a renewable energy champion after years of being dependant on other countries for coal, gas and oil. Prime Minister Jose Socrates has a goal that renewable energy sources such as wind, solar and wave power account for nearly half of the electricity consumed in Portugal by 2010. This is certainly an achievable target since 36% of Portugal's electricity

output came from renewable sources in 2005. Land outside a town in Moura has been allocated to build the largest solar wind farm in the world. This project is expected to benefit the community and create over 1000 jobs in a shire that currently has 900 people unemployed. Portugal is showing the rest of the world that we can make the switch to renewables and the economy doesn't have to suffer.

Australia and America are screaming out for a change of government and it won't happen unless we properly educate ourselves about the issues (check out www.publicagenda.org to explore issues) and candidates (www.vote-smart.org) through trustworthy sources (TV commercials and unsolicited mail don't count). Political change won't happen unless you vote, so make sure you do it!







CHAPTER 7

IT'S TIME FOR CHANGE

It is not the strongest of the species that survives, not the most intelligent, but the one most responsive to change.

-Charles Darwin



Australians and Americans are amongst the highest greenhouse gas polluters per capita in the world, with Australia emitting 28 tonnes per person

and America emitting 25 tonnes per person annually (In comparison, China's emissions are approximately 2 tonnes per person and India's emissions are only 1 tonne per person). Most of us are intelligent, capable

human beings who are aware of global warming. We also know we should be doing something about it right now. But are we? Some of us are, but many of us aren't. Social science research tells us that merely gaining a general awareness of environmental issues such as global warming and changing attitudes towards the environment will not necessarily lead to people changing their behaviour.

What needs to be done to propel us into action?

A review of several energy conservation programs found that the following strategies make a difference in changing peoples' behaviours.

Energy Audits: An energy audit is a cheap and easy way to reduce your carbon footprint. It's a way of providing you with feedback on what you're doing right in terms of conserving energy and what can be improved. A professional energy auditor visits your home, school and/or workplace, looks at your energy

consumption and shows you the different ways you can save energy and money.



Studies have been performed on the effectiveness of energy audits in reducing peoples' consumption. One study took two groups of households in which one group was given energy

audits and the other group received no audits.

Researchers found that households who were given the energy audits reduced their household electricity use by 21% more than the other group.

Many local councils are now providing free energy audits to households or you can get one done by a private organization. These audits pay for themselves easily. My family had an energy audit done last year and we saved AUD\$96 on our electricity bill in just the first month through making simple changes such as switching off our home

computers, turning off appliances at the power point and getting rid of a fridge that we hardly ever used.



Pledge: Making a pledge (an oral or written commitment or promise) to change your

behaviour and reduce your greenhouse gas emissions can be a powerful action. One study found the households that made a commitment to conserve energy by 10% and received information on how to do it, saved more energy in comparison to those that didn't commit to conserving energy.

Al Gore created the *Live Earth Pledge*, which states:

I PLEDGE:

1. To demand that my country join an international treaty within the next 2 years that cuts global warming pollution by 90% in developed countries

and by more than half worldwide in time for the next generation to inherit a healthy earth;

2. To take personal action to help solve the climate crisis by reducing my own CO₂ pollution as much as I can and offsetting the rest to become “carbon neutral”;

3. To fight for a moratorium on the construction of any new generating facility that burns coal without the capacity to safely trap and store the CO₂;

4. To work for a dramatic increase in the energy efficiency of my home, workplace, school, place of worship, and means of transportation;

5. To fight for laws and policies that expand the use of renewable energy sources and reduce dependence on oil and coal;

6. To plant new trees and to join with others in preserving and protecting forests; and

7. To buy from businesses and support leaders who share my commitment to solving the climate crisis and building a sustainable, just, and prosperous world for the 21st century.

You can sign up and print out this powerful pledge at www.algore.com/pledge



Rewards: The presence of rewards can influence you and the people around you to take action and sustain positive behaviour change. My friend,

Esther Duffy, led a sustainable living program called *Living Smart*. One of the participants in her program complained that she had trouble motivating her children to turn the lights off once they left each room. Esther encouraged this woman to offer her children any money that was saved from the electricity bill. At the next session, Esther asked her what the result had been. 'We have been living in complete darkness' was the participant's response. The use of rewards had clearly worked!

Be careful choosing your rewards.



You don't want to have a reward that will defeat the purpose of your greenhouse gas reduction goal (i.e.

a plane flight abroad or a new plasma TV screen that emits more greenhouse gases than your previous

screen). The rewards also don't have to be financial or material. Terry Power and Dr Peter Dingle in their book *Goal Getting: The Science of Achieving Goals* discuss how some of the simplest things in life can be the best rewards.

Here are a range of different rewards and incentives you can give to yourself and family for reducing your carbon/ecological footprint:

1. Go for a trip to the beach
2. Have a cup of your favourite tea
3. Take a quiet, local holiday
4. Go dancing with your partner or friends
5. Watch a movie

It may be rewarding in itself to simply know that you personally are treading lightly on the planet and doing your best to look after it.



Modeling: Admired individuals (i.e. celebrities) modeling ideal energy conserving beliefs and practices can be incredibly influential and

motivating for some people. Cameron Diaz, Leonardo Dicaprio, Robert Redford and Melissa Etheridge are just a few celebrities that have made changes to their lives to reduce their carbon footprint.



Goal setting: This is one of the most effective strategies you can apply to help you achieve results in all areas of your life (the

environment, health, relationships, career, etc). Setting your own goals helps you to stay focused and take the actions you need to take (More on this strategy in Chapter 8).

It has been shown scientifically that the above strategies make a difference to reducing personal energy use. Try them out and see; you have nothing to lose but greenhouse gases!

Mental and Physical Health



If we don't look after ourselves, how will we be able to look after the planet? It is important that we take care of our mental and physical health so we can be as effective as possible.

Learning about global warming, speaking to people about it and taking actions to combat it can be a stressful and upsetting activity at times. I spoke to over 100 teenagers and teachers recently about what they could do to combat global warming. To realise that very few of them seemed to care about the future was incredibly disheartening. Did this

experience stop me from speaking out in schools?
No way!

Several months ago I went out to lunch with some friends and they were talking about their plans to travel the world. I mentioned how harmful air travel was for the atmosphere and suggested they consider carbon offsetting their flights. When I saw my friend roll her eyes at my suggestion, ignore the question and then change the subject by asking if there was salt in the dish in front of her, I felt disheartened and embarrassed that I had even made the suggestion. Did this stop me from speaking about carbon offsetting in the future? Of course not, but it may have, had I not known how to deal with the stress and emotions that were coming up for me.



There are lots of different ways you can reduce stress in your life. Watching your thinking is one way. Often what we say to ourselves is negative (i.e. 'I can't do

this', 'I'm stupid' and 'It won't make a difference'). These negative thoughts often lead to negative feelings (i.e. anger, frustration and sadness) and negative behaviours (i.e. give up, swear out loud and violence). If you're not fully convinced, take a look at the negative and positive statements on the next page:

Negative Statements	Positive Statements
I should	I can
I could	I am
I would	I choose
I want	I have
I can't	I create
I'm a loser	I'm a winner

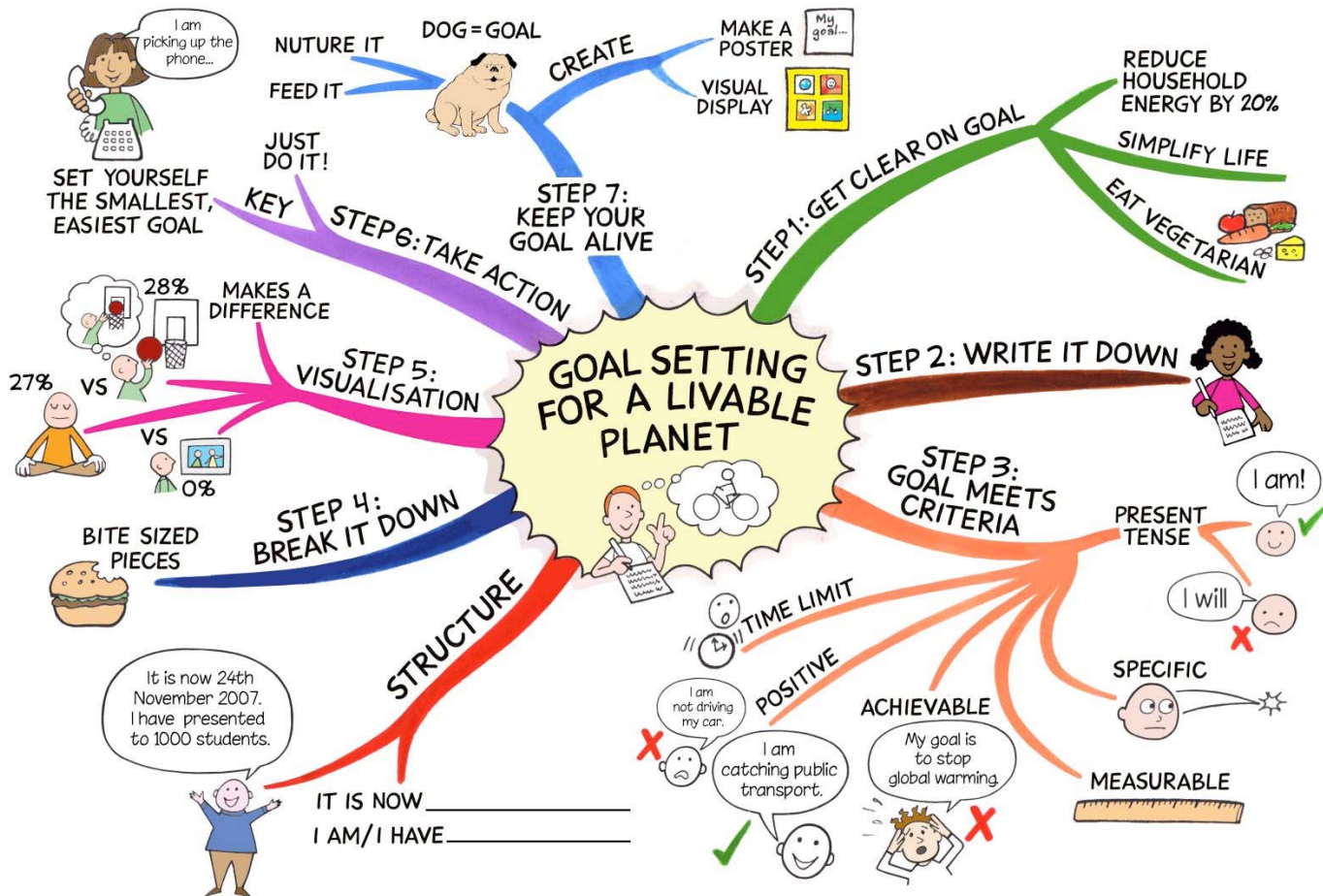
I have observed that saying the negative statements above can have a devastating effect on your mood. Negative thoughts will simply make us feel bad and it will be counterproductive to us making a difference. So start to watch your thinking and if it's negative (the statements above can help you to identify this) try to replace those thoughts with neutral or positive thoughts.

Don't get me wrong, I'm not saying never ever expose yourself to negative news and events and pretend that everything is absolutely fabulous in the world. My point is that most of the time many of us put ourselves down. This is unnecessary and will hold us back from making a difference. As an experiment, try repeating out loud the positive statements in the right hand column of the table above and see the effect this has on your mood.

Other ways that will help you to relieve stress are to have massages, laugh regularly, meditate, practise



yoga and/or tai chi, exercise and breathe deeply. I have experimented with all of these, and found what works best for me is doing weight training and aerobic exercise several times a week.





CHAPTER 8

GOAL SETTING FOR A LIVEABLE PLANET

You will recognize your own path when you come upon it, because you will suddenly have all the energy and imagination you will ever need

- Jerry Gillies

As mentioned in the previous chapter, goal setting will help you to stay focused and take the actions you need to take to help combat global warming.

How does one set goals effectively? Here is one way you can do it.

Step 1: Get clear on what it is you want to achieve (your goal)

Do you want to reduce you household electricity use by 20%? Do you want to simplify your life so you are less of a slave to time and material goods? Perhaps you would like to be someone who inspires other to start acting in environmentally responsible ways. There are endless possibilities for what you can create and it is time to start exploring these.

But what if you have no idea? You are so used to things being as they are and you can't imagine life being any different. One of my Psychology university lecturers, Alex Main, recommended the following strategy to me.

1. Look at the lives of the people whom you admire (at least one person must be someone you know personally).

2. Pinpoint what it is about that person(s) whom you really admire. What are his or her admirable characteristics?

For me, I first looked at my Japanese friend, Takeshi. Takeshi has a lot of energy and passion for the environment and sharing its wonder with others. He is a great teacher whose mind and heart are so open! Anything and everything is possible for Takeshi.

I also admire our local sustainability consultant, Ben Rose. Ben is someone whose actions speak louder than his words. He has halved his household's greenhouse gas emissions and adopted a simpler, more fulfilling way of life. Ben now coaches and inspires families to do the same.

From looking at the lives of these two inspiring people, I can see that I want to help people wake up and start taking global warming seriously. I want to

also be someone who walks the talk when it comes to making a difference to the environment.

At first, you may feel a bit funny exploring what you want, as the cynic in you may be saying 'nah, don't be stupid. It's not possible!' or you may even be thinking 'my life is fine just the way it is'. Just be aware of what your critical inner voice is saying, thank the little voice for sharing and carry on exploring what you want for your life.

If you have trouble doing this activity, here are a few questions to help you start thinking about the type of things you may want to create.

1. Would you like the problem of global warming to be fixed?
2. Would you like to contribute to help solve the problem?
3. Would you like to be part of the solution to the problem?

4. Would you like to help others learn more about global warming?
5. Would you like to join an environmental organisation?
6. Would you like to catch public transport more often?
7. Would you like to speak out in public about global warming?
8. Would you like to reduce your household electricity and gas?
9. Would you like to own a fuel efficient vehicle?
10. Would you like to eat more healthy, organic, vegetarian meals?
11. Would you like to buy less and save more?
12. Would you like to spend more time with you friends and family?
13. Would you like to do some volunteer work?
14. Would you like to identify your life purpose?
15. Would you like to get into activism or politics?



Step 2: Write it down

Once you are clear on what you want, write it down immediately! According to scientific studies, the simple act of writing down your goals increases

your chances of achieving them. Researchers at Yale University took a group of 400 graduating students and instructed these students to write down their goals. Only 3% of the 400 students actually wrote down their lifelong goals in a specific manner. 20 years later, all the students met for a reunion. What the researchers found was the group who had written down their goals seemed a lot happier than the others and were more successful than all of the other 97% combined. So, if in doubt, write it out!

Step 3: Make sure your goal(s) meets the criteria

You can increase your chances of achieving your goal by making sure it meets the following criteria:



Present Tense: Studies have revealed that the mind doesn't know the difference between what is real and what is vividly imagined. An example of this can be seen in Olympic athletes and bodybuilders.

When they visualise themselves executing a particular exercise, they have the same brain activity as when they actually perform the exercise. Simply by saying 'I am reducing my carbon footprint' instead of 'I will reduce my carbon footprint' makes it seem more real and more likely that you will do it.

Specific (clear and concise):

SPECIFIC



Specific goals help you to establish crystal clear focus and

drive. Vague goals are like sightseeing in Rome without having a map. You may eventually stumble across the Colosseum and the statue of David, but it will take you longer and be a lot harder to get there than it should have been. Vague goals also make it harder to know the precise point when you have actually achieved the goal.

MEASURABLE



Measurable: By being able to

measure your goal (e.g. the

amount of electricity and gas saved on your bill) you will know whether you have achieved your goal or not for the obvious reason that you will be able to measure it. Below are some of the different things you can measure:

- Time: the time spent in the shower, time spent reading and educating yourself and others on global warming, time spent volunteering every week, etc.
- Electricity: you can measure the amount of household electricity used by reading your energy meter box or power bill.
- Money: you can calculate the amount of money you spend and save every week by cutting back on eating and drinking at fast food outlets/restaurants/cafes/hotels, buying unnecessary goods, etc.



Achievable: If your goal is totally unreasonable and not achievable, you will start to stress out, put yourself under unnecessary

pressure and lose motivation. The stress may become too much, things will start to seem too hard and there is a good chance you will want to give up. Some examples of unachievable goals are:

- *'I am bringing the Tasmanian tiger back from extinction'*: The Tasmanian tiger is a species that is sadly gone for good.
- *'I am going to stop the one degree rise in global temperature'*: Unfortunately a one degree rise in global temperature is inevitable according to reports by the IPCC.

Positive: Positive goals make us feel good not only when we achieve them but while we are thinking about them and also working towards achieving them. If I set myself the following goal 'I am not driving my car into the city in order to decrease my



pollution', what images immediately jump to mind? Images of a car and pollution. These images hardly inspire me and empower my behaviour change. Instead I

could set myself this goal:

'I am catching public transport into the city. As a result, I get to enjoy reading interesting books, I feel calmer and the air is cleaner'

How do I feel after setting this goal? Pretty good! When I think about this goal, positive images of myself enjoying the day and a healthier planet spring to mind (and not having to worry about the traffic and finding a parking spot!).



Time Limit: Dr James Hansen (Leading Scientist at NASA) says we have less than 10 years to do something about

global warming before we reach the point of no return. If we don't set clear deadlines for our goals, chances are we may never achieve them in the small space of time we have available. Having a time limit means you clearly know when you have or haven't achieved your goal. The time limit will motivate you to stop procrastinating and take action.

Putting it all together

You can follow this simple formula to create goals.

It is now _____

(Insert future date when I have achieved my goal)

I am/I have _____

(Insert the last step you need to take to know you have achieved your goal)

Below is an example of one of my personal goals:

It is now the 24th November, 2007



I have delivered my presentation 'Global Warming: Too Hot to Handle?' to over 1000 students. They are making changes to their lives and lowering their energy usage.

Now take some time to set some of your own goals in the space below

It is now _____

I am/ I have _____

It is now _____

I am/ I have _____

It is now _____

I am/ I have _____

Step 4: Break it down



Imagine your favourite burger. Juicy and bursting with flavour! How would you normally eat it? Most people would eat a burger one bite

at a time. If you were to eat it all in one mouthful, you would not enjoy the taste, you would make yourself sick and probably would not want to eat another burger anytime soon.

Now goal setting works the same way. You have your long term goal (a goal that can be achieved at some point in the future) and then you have your short term goals (goals you can achieve in the near future such as today or tomorrow). If you don't break down your long term goals into smaller, short term

goals, you are going to make yourself feel sick and overwhelmed. It is only through achieving all your short term goals (your bite sized pieces) which can be done right here and now, that you will be able to achieve your long term goals (the big, juicy burger).

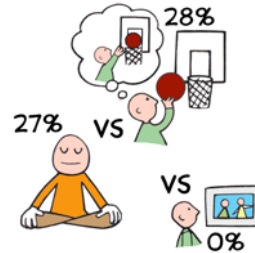
This is where so many people get stuck in life. They set a big goal for themselves and they don't break it down into smaller steps. Why do you think people would stop at this stage? They get overwhelmed, they start to think 'it's all too hard' and then they give up.

What's the solution? You may want to try this clever strategy. Imagine a movie has been made of you achieving your goal (the goal can be however big or small you want it to be). You are sitting back, eating some popcorn and watching the ending of this movie. You finally reach the part where you have done what you have always wanted to do. You have achieved your goal! It's your victorious moment. You

have helped the earth in some way (perhaps your children and grandchildren are cheering with joy and applauding you). Notice how it feels. Then all of a sudden someone presses the rewind button on the remote control and you see yourself moving backwards in time. You observe all the small steps you had to take to reach your goal, you see the dramas of coming up against obstacles (perhaps apathy and cynicism from others), all the hard work as well as the satisfaction of completing the smaller goals.

What you are doing is a process called top down planning. Imagine yourself at the end, having achieved your goal and then work backwards up until this point in time, seeing all the steps you need to take.

Step 5: Visualisation



Visualisation can help us to achieve our goals. The latest research into visualisation reveals that your mind can't tell the difference between an activity you visualise and

one you actually perform. Researchers at Ohio State University tested out this idea. They took a group of basketball players and split them up into three teams. Each group was given a basketball and told to shoot foul shots. The players' scores were then recorded as a baseline measure. The first group was then told to practice shooting foul shots for 30 minutes a day for 30 days. The second group had to visualise themselves shooting foul shots for 30 minutes a day for 30 days, however they couldn't actually shoot any shots. The third group couldn't

practice shooting any foul shots and couldn't visualise themselves doing so either. What did the researchers find after 30 days? Who had improved the most?

The group who didn't practice and didn't visualise showed no improvement. The group who only imagined themselves shooting but never picked up a ball improved by 27%. The group who practiced shooting but didn't visualise improved by 28%. That's only 1% difference! This demonstrates the power of visualising yourself taking the actions you need to take. If you make your visualisation as realistic as possible by involving all of your senses (feeling the appropriate feelings, hearing the appropriate sounds, tasting the appropriate tastes and smelling the appropriate smells) then you will increase your chances of success.

Does this study tell us that we can just sit there, hold hands and collectively visualise a reduction in greenhouse gases and it will happen? That would be nice, but visualisation on its own isn't the solution to global warming. It can however help all of us to achieve our goals with more confidence and ease.

Step 6: Take Action

What else do you need to do after you have created an effective goal, written it down, broken it down into bite sized pieces and visualised yourself carrying it out? You need to take immediate action. You are either taking action towards your goal or you are not taking action. Now I don't know about you, but for me this has always been the hardest part. If I had an assignment to do or project to complete, I would clean my room, check my email, rearrange my desk, I would tell myself 'It's too hard' and I would do or say anything I could to avoid getting started! What would happen is I would either have two days to

write a 3,000 word essay or I would have missed the opportunity altogether. Often I would feel stressed out and disappointed in myself.



The key to getting started is to set yourself the smallest, easiest goal to achieve.

Let's say you want to have a home energy audit

performed on your house. You can start by setting yourself the following goal 'I am picking up the phone and booking a home energy audit' or 'I am on the internet and googling the words *home energy audit*'. Once you have made the call or googled the words, it will propel you onto do another action and then another. Before you know it you will have completed dozens of environmentally friendly actions. This technique has also helped me to complete university assignments well before their due dates, simply by setting myself the goal 'I am writing one sentence of this essay'. After writing one sentence I don't stop

there, I go onto write a second and a third...before I know it I have written a significant amount of the essay. Once the action has started and you have some momentum, the rest flows with incredible ease.

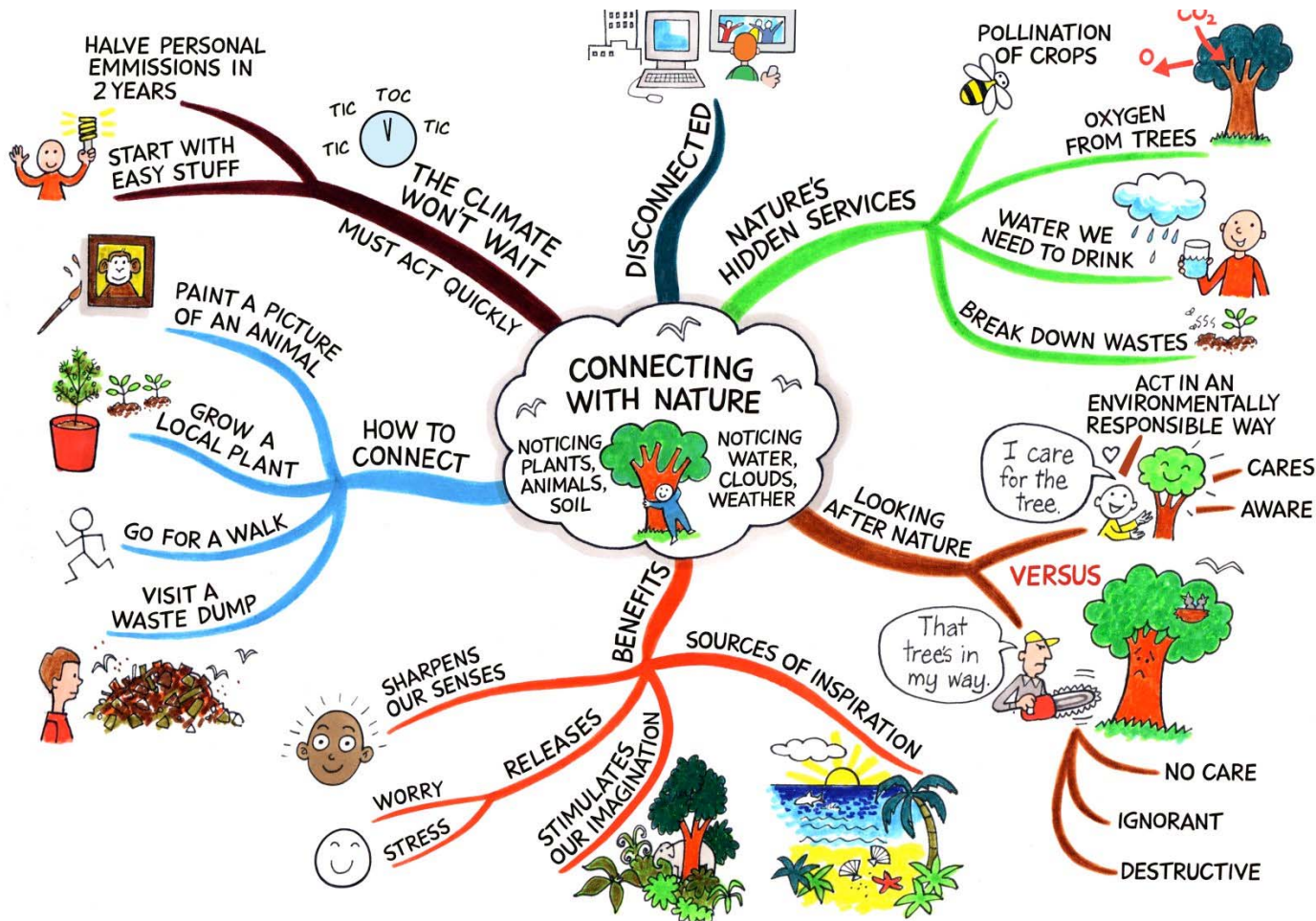
Step 7: Keeping your goal alive



Treat your goals as you would treat your precious pets. What do I mean by this? Let's say one day I woke up and decided 'I really can't be bothered feeding my dog

anymore. I can't be bothered patting her or giving her a wash. From now on she can look after herself' What would happen to my dog? She would die! Similarly, if I don't nurture my goals, feed them, look after them and do something for them everyday they will die too. The situation for our planet will stay the same or most probably get worse.

How can you keep your goals alive? Many people create visual displays of the future they want, some type out their goals in large font and put them in a place where they can see them everyday. Famous actor and comedian, Jim Carey, kept a fake \$10,000,000 cheque in his wallet for 10 years and looked at it on a daily basis. Whilst I'm not suggesting 'Let's strive to acquire more wealth!' this was a powerful strategy that kept Jim focused on what he was up to in life. We can do the same when it comes to creating a healthier, happier world.





CHAPTER 9

CONNECTING WITH NATURE

It is astonishing how short a time it takes for very wonderful thing to happen

-Frances Burnett



If you live in the city surrounded by concrete walls, chances are you may not have spent much time out in the sun, feeling the rain and connecting with nature. Subsequently, many of us may take for granted the various hidden services nature provides. For instance, we rely on bees to

pollinate our food and oxygen to keep us alive.

Michael Ableman states 'Most of our society...no longer knows what it's like to pull a carrot from the ground, or eat the heart out of a watermelon still warm from the sun, or munch on beans that are so fresh that they explode in your mouth'. In the western world we are able to go to the shops and buy whatever food we desire off the shelf. Professor Hiroshi Takatsuki says in his book *Pictureecology* that we live our lives under the false illusion that we have no connection to the natural world, when indeed we do.



If you don't care about nature or feel connected to it, you probably won't look after it. It is similar to human health. Someone

who doesn't care about their health may smoke, drink lots of alcohol and caffeine, eat fatty foods, not exercise and is likely to expose their body to other

harmful activities. Whereas an individual who is strongly connected to their body will care and pay attention to it, making sure they eat nutritious foods and engage in regular physical activity. Similarly, it is only through developing an awareness and connection with the natural world that you will be compelled to start acting in environmentally responsible ways.



Connecting with nature (noticing the plants and animals around you) can benefit us in amazing ways, yet very few of us actually enjoy a deep connection with nature. Nature provides us with

a source of energy and inspiration. It allows us to focus our thinking, stimulates our imagination, sharpens our senses and releases worry and stress.



How does one develop an awareness and connection with nature? There are countless ways to do this and it doesn't have to involve hugging trees and worm farming (I understand these activities aren't for everyone). Unfortunately, there are no quick fixes. What you will need is time to develop a connection with nature. Discovering the wonders of the natural world cannot be rushed, forced or learnt out of a text book. It must be experienced first hand in a slow, relaxed fashion. You have to begin by looking and studying what is going on around you.

Spending time in a forest is a great place to start. One of my good friends, Sheena, grew up in an apartment in Singapore and for most of her life she had very little exposure to forest and bushland. A few months ago she stayed at a lodge in the southwest forest of Western Australia for the weekend. It was

the first time she had been out in the wilderness and it blew her mind. She went bush walking and canoeing, and couldn't stop telling me how beautiful and relaxing it had been. It was as if she didn't know that such things existed! The good news is that you don't have to come to Western Australia to have a liberating experience like my friend did. There are places all around you waiting to be explored.

WWOOFing (Willing Workers on Organic Farms) is a fun way for you to develop your connection with nature as well as travel cheaply at the same time. WWOOF is a series of host properties you can visit and exchange your ideas and culture while working for four to six hours per day for food and accommodation. Most WWOOF hosts are small properties located in the country that grow food organically (without chemicals). The work will vary depending on where you choose to go. Last year, I went WWOOFing in a small town in Japan. My host, Takeshi, was an organic farmer and the principal of

an alternative school. I helped Takeshi do a range of things: teach English classes, make organic rice crackers, garden and clean. In exchange for this, I got to learn about how Takeshi came to love the land and how he wanted to make a difference in the world. The great news is you don't have to travel very far to WWOOF. You can pay a small subscription fee and start WWOOFing within your own state (www.wwoof.org).



Pack a picnic and go spend some time at a waste dump. When you get there take a deep breath in and good look at your surroundings. When you put something in the bin, it doesn't just go away. It goes somewhere, in landfill. When I visited Japan last year I was shocked at how many people would throw away near new appliances and items simply because they bought a newer, flashier model. My brother discovered a brand new bicycle had been

thrown away because it had had a flat tyre!
Sometimes you need to be shocked to change. A waste dump will give you the shock you need to move towards creating a healthier, happier way of life.



Go for a walk. Carl Honore in his best selling book *In praise of SLOW* points out 'When we walk, we are aware of the details around us – birds, trees, the sky, shops and houses, other people. We make connections'. I found this to be true in Japan when I had the option of taking a cable car to get to the top of a mountain (15 minute journey) or walking up a mountain (2 hour journey). I was running low on cash at the time so I decided to walk up the mountain. I saw the greenest, brightest moss on rocks, deers, heard birds singing and even saw a screaming monkey 20 metres away! There wasn't a single human being in sight. When I got to the top of the mountain, I was exhausted but the view was

absolutely incredible. I eventually stumbled across a run down hut and ordered some simple udon noodles in broth (they tasted extra delicious). Some elderly women noticed I was exhausted and offered me cups of green tea and chocolates. This simple gesture was so touching. It was getting late so I decided to take the cable car back down the hill. All I can remember is sitting in the isolated, cold, dirty cable car on my own and contrasting the experience to my walk. I felt disconnected from the rich environment I had just experienced and was grateful when the cable car journey was over.

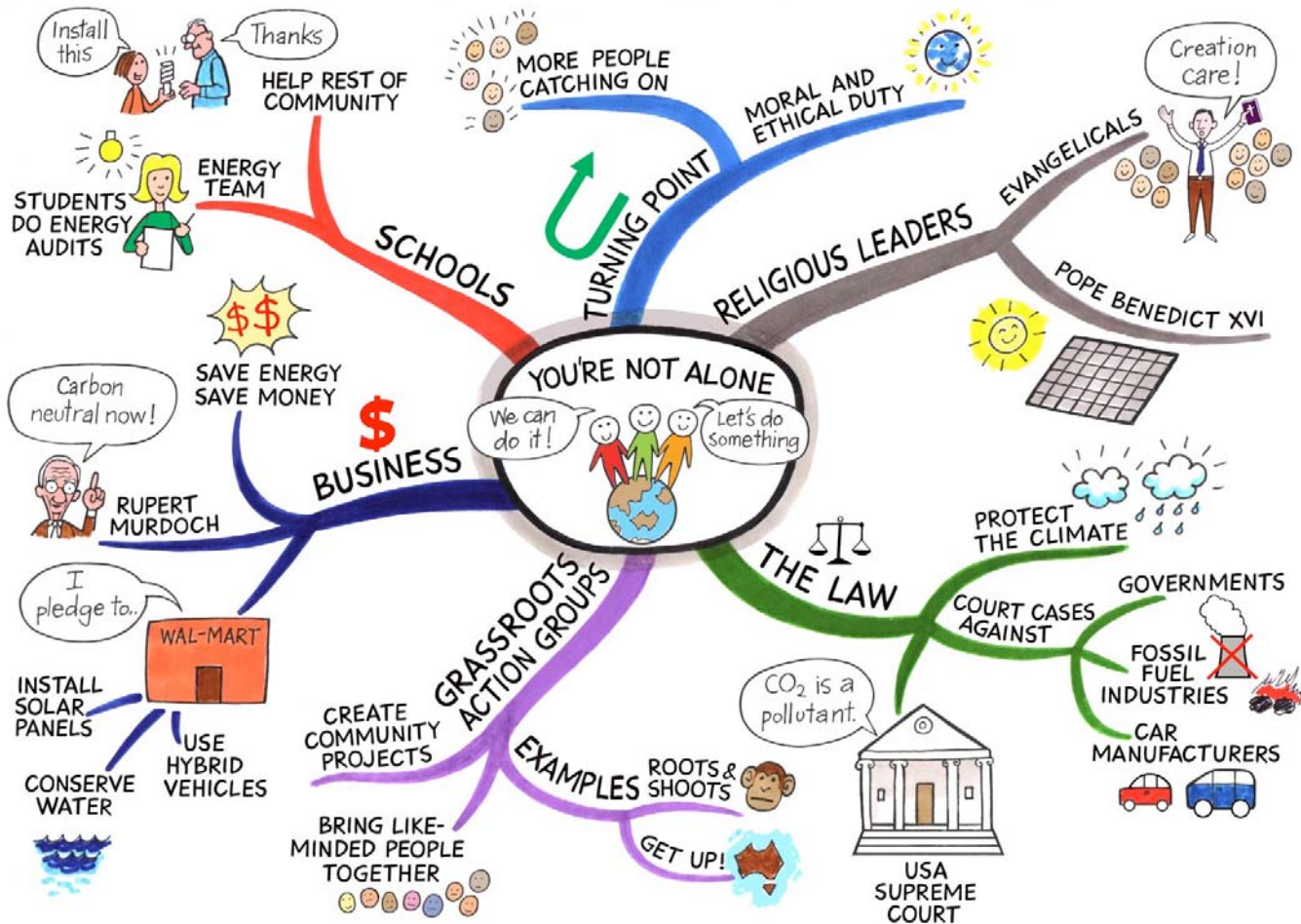


Grow a plant and watch it grow.
Listen to your surroundings. Sit down and paint a picture of a plant or animal. As you begin to slow down and become more aware of things occurring in the natural environment, you will be amazed by how much joy you will experience from some of the

simplest things in life. For myself, I started noticing wonderful quendas (a native Australian bandicoot) running around my university campus. I also noticed that my pet chickens didn't just sit around all day but they liked to jump up to snatch low hanging grapes off vines, come running when my mum would call them, come back to their pen at night and be extremely curious about everything in our garden. I never could have imagined that watching these simple creatures would be so amazing!

There are many other things you can do to develop your connection with nature. One thing is for sure, the more you develop your connection to it, the deeper your experience of life will be. You will become happier. You will also have more energy to do what you can to address global warming.

You may have read the last few line and thought 'that sounds nice' and like many things in life you have good intentions to develop yourself and engage in different activities but life often gets in the way. You may tell yourself 'One day I will go camping on the weekend' or 'Someday I will start painting' and more often than not, it never happens. 'One day' keeps getting pushed further and further into the future. We can't act in a 'one day, someday' manner because the climate isn't going to stop and wait for us. We must develop our connection and start taking actions quickly to get our lives and houses in order.





CHAPTER 10

IT'S OK, YOU'RE NOT ALONE!

We must not, in trying to think about how we can make a big difference, ignore the small daily differences we can make which, over time, add up to a big difference that we often cannot foresee

- Marian Wright Edelman

You may know people who drive around town in big gas guzzling cars and constantly brag about their next trip overseas. Seeing and hearing these things may make you cringe, feel disheartened and want to give up. But please don't. There are a growing number of people and groups who are trading in their big cars for smaller, fuel efficient vehicles and changing their behaviours to help the environment.



Evangelical Christian leaders are one example. Over 85 evangelical leaders including Presidents of evangelical colleges, leaders of aid groups and churches have backed a major initiative, The Evangelical Climate Initiative (www.christiansandclimate.org), to fight global warming. The Statement of the Evangelical Call to Action declares 'Christians must care about climate change because they love God the Creator and Jesus our Lord, through whom and for whom the creation was made. This is God's world, and any damage that we do to God's world is an offence against God Himself (Gen. 1; Ps. 24; Col. 1:16)'. There is also a biblically inspired environment movement called 'creation care', which is based on the idea that Christians have an obligation as described in the Book of Genesis to 'replenish the earth' as god's stewards.

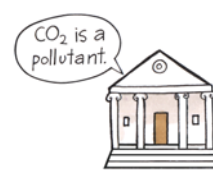


Prominent religious leader, Pope Benedict XVI, is doing his bit for global warming.

Last year he urged his

followers not to squander the world's resources and now he is installing photovoltaic solar panels on the roof of the Paul VI auditorium in Vatican City. The solar panels will generate enough power to light, heat or cool the auditorium which sits 6,300 people. He is also considering installing solar panels on other buildings (with the exception of St Peter's Basilica and other historical landmarks).

The law can be a powerful and effective tool to bring about climate change protection. Over the last few years lawsuits have been brought against governments, fossil fuel industries and automotive manufacturers in an attempt to make them responsible for their contribution to the climate crisis. The state of California sued six car manufacturing firms (General Motors, Toyota, Ford, Honda,



Chrysler and Nissan) asking to be compensated for the damage the emissions have caused and are causing to

human health, the economy and environment. The state of California alleged emissions from the cars made by the six firms account for 30% of all of California's CO₂ and 9% of the world's total CO₂ emissions. This year the U.S. Supreme Court also ruled that CO₂ is a pollutant, and therefore can be regulated under the *Clean Air Act*.

Several lawsuits have also taken place in Australia. On the 7th November 2006, the Queensland Conservation Council lodged an objection to the proposed expansion of a coal mine by Xstrata Coal Qld Pty Ltd. The expansion would result in 28.5 million tonnes of coal being produced and 84 million tonnes of greenhouse gases would be released from mining, transporting and using the coal. It was argued that this amount of greenhouse gas

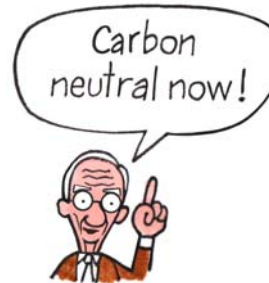
emissions would contribute significantly to global warming. Queensland Conservation Council wanted reasonable conditions imposed on the mine to mitigate the greenhouse gas emissions. Unfortunately, the Queensland Land & Resource Tribunal who heard the case dismissed the objection and recommended that the mine be approved without placing any conditions on emissions.

Recently, Friends of the Earth (Canada) sued the Canadian Government for having abandoned its international commitment under the Kyoto Protocol to reduce its greenhouse gas emissions. Canada's greenhouse gas emissions are presently 34% above their 6% reduction target set by Kyoto.



Grassroots action groups are being formed all over the world. Jane Goodall's Roots & Shoots (www.rootsandshoots.org) and GetUp! (www.getup.org.au) are examples of organisations that

bring like-minded people together to work on projects that make a difference to local communities.



Rupert Murdoch
(controlling shareholder,
chairman and managing
director of the largest
media conglomerate,
News Corporation)
recently announced his

intention to be carbon neutral across all his businesses by 2100. Murdoch stated in his inspiring speech that the first step towards accomplishing this goal was to measure his carbon footprint (In 2006 Murdoch's empire had a carbon footprint of 641,150 tonnes). The second step is to switch to using renewable energy sources and the third step is to offset any greenhouse gas emissions (if necessary). Just imagine what would be possible if all the news organisations became carbon neutral? 'It will be the same as turning off all the electricity in the city of

London for five full days' said Murdoch. What would be possible if all corporations (not just news corporations) took on this challenge? Murdoch is quick to point out that by reducing his use of energy it also reduces his costs. It is a win-win situation.



Wal-mart (a business with more than 7,000 stores and 1.8 million employees) has pledged to install solar panels, conserve water and start using hybrid vehicles. It has also asked its 60,000 suppliers to make an effort to reduce packaging, waste and energy use. By 2020, Wal-mart is expected to save \$494 million a year by adopting energy efficient behaviours (i.e. using fuel efficient truck fleets and building stores that are more energy efficient).

Schools have begun to empower students to conserve energy and help others to do the same. At Mary E. Silveira School in San Rafael, California, a group of students (The energy team) conduct energy audits and write notes to teachers, reminding them to turn off their lights and computers when a class goes out for lunch. But it doesn't stop there. The school's energy team joined the Affordable Communities Energy Education program and spent 2003-2004 working with local senior citizens in a housing facility. School Principal Jeanne Casella said of the program 'The kids put up energy-reminder signs and doorknob bookmarks in English and Spanish, and helped the residents to replace traditional light bulbs with energy-efficient compact fluorescent light bulbs and to take other simple actions. They saved the seniors about 5 percent on their energy bills while learning about energy efficiency themselves'. Not only did the seniors benefit from the experience, but so did the children. 5th grade member of the energy

team, Sara Lee, said 'We go around to the apartments checking that the lights are off and on, so that we can save them money on their energy bill. The money they save goes to the fun stuff they do'. Children feel great when they can help someone and make a difference at the same time.

We're at a turning point where more and more people, groups and corporations are catching onto the need to take action to leave behind a healthy planet for the next generation. No longer can we use the lame excuses 'No one else is doing anything, so why should I?' and 'It's going to cost too much' because they're simply not true. Each of us now has a moral and ethical duty to take action to reduce our greenhouse gas emissions.

Finally, I'd like to leave you with the inspiring words of sustainability consultant, Ben Rose. His advice to us all regarding the climate challenge is as follows:

Start with something easily do-able like changing to natural power [green power], changing to compact fluorescent light bulbs and low flow shower heads (if you haven't already done so). Once you make the changes you'll find it'll give you more quality of life, not less. But be concerned, be fearful enough to keep making changes – keep your emissions trending down. Aim to halve your emissions in two years; use the greenhouse gas calculator (www.carbonneutral.com.au) to keep track of your emissions. Be afraid of the consequences of 'business as usual'; there's a lot at stake – the future of human civilisation. The only way we will get there is one by one, each changing our ways and encouraging each other.

We have a moment. Let's use this moment to make a difference.



References

Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A Review of Intervention Studies Aimed at Household Energy Conservation. *Journal of Environmental Psychology*, 25, 273-291

Analysis of President Bush's Climate Change Plan
<www.pewclimate.org/policy_center/analyses/response_bushpolicy.cfm> (4 May 2006)

Arctic Climate Impact Assessment: Policy Report (29 October 2005) <<http://www.acia.uaf.edu/>> (1 May 2006)

Australian Department of the Environment and Heritage and Australian Greenhouse Office *Climate Change Science: Questions Answered* (Canberra: Australian Greenhouse Office, 2005)

Bartlett, A.A., *Arithmetic, Population and Energy*
<<http://globalpublicmedia.com/lecturers/461>> (13 June 2007)

Brown, L.R. (2006). *Plan B 2.0: Rescuing a planet under stress and a civilization in trouble*. New York: W.W. Norton & Company, Inc

Capelli, G., & Brealey, S. (2000). *The Thinking Learning Classroom*. Perth: The True Learning Centre

Cascio, J. (2007). *Funny Numbers* (17 January 2007)<http://openfuture.com/2007/01/funny_numbers.html> (5 March 2007)

David Suzuki Foundation, *Kyoto Protocol: FAQs*

<http://www.davidsuzuki.org/Climate_Change/Kyoto/FAQS.asp#KP> (22 May 2006)

Cook, S.W., & Berrenberg, J.L. (1981). Approaches to Encouraging Conservation Behaviour: A Review and Conceptual Framework. *Journal of Social Issues*, 37(2), 73-107

Ellis, K. (1996). *The Magic Lamp: Goal Setting for People Who Hate Setting Goals*. New York: Three Rivers Press

Costanzo, M., Archer, D., Aronson, E., & Pettigrew, T. (1986). Energy Conservation Behaviour: The Difficult Path from Information to Action. *American Psychologist*, 41(5), 521-528

Flannery, T. (2006). *The Weather Makers: The History and Future Impacts of Climate Change*. Melbourne: The text publishing company

Gelbspan, R. (2004). *Boiling Point: How Politicians, Big Oil and Coal, Journalists and Activists are Fuelling the Climate*. New York: Basic Books

Honore, C. (2004). *In Praise of Slow: How a Worldwide Movement is Challenging the Cult of Speed*. London: Orion Books

Kennedy, R.F. (2007). The Bush Administration: Texas Chainsaw Management. *Vanity Fair*, 561, 82-84

Intergovernmental Panel on Climate Change,
Climate Change 2001: Synthesis Report (Summary
for Policymakers) (September 2001)
<<http://www.ipcc.ch/pub/un/syrenng/spm.pdf>> (25
April 2006)

Kluger, J. (2007). What now? Our feverish planet
badly needs a cure. *TIME*, 13, 34-44

Kluger, J. (2006). The tipping point. *Time* 14

Jones, E., Haenfler, R., Johnson, B., & Klocke, B.
(2001). *The Better World Handbook: From Good
Intentions to Everyday Actions*. Canada: New
Society Publishers

*Kyoto Protocol to the United Nations Framework
Convention on Climate Change*, 16 March 1998,
<<http://unfccc.int/resource/docs/convkp/kpeng.pdf>>
(2 May 2006)

Lynas, M. (2007). *Carbon Counter: Calculate your Carbon Footprint*. Glasgow: HarperCollins Publishers

Norton, M. (2006). *365 Ways to Change the World: How to Make a Difference One Day at a Time*. Victoria: Penguin Group

Macy, J., & Brown, M.Y. (1998). *Coming Back to Life: Practices to Reconnect our Lives, our World*. Canada: New Society Publishers

Portugese Power (2007). Retrieved August 5, 2007, from Dateline website:
<http://news.sbs.com.au/dateline/index.php?page=archive&daysum=2007-07-25#>

Monbiot, G. (2006). *Heat: How to Stop the Planet Burning*. Victoria: Penguin Group

Power, T., & Dingle, P. (2005). *Goal Getting: The Science of Achieving Goals*. Perth: Comet Publishing

Moon, H. (2002). *Pictureecology*. Kyoto: Japanese Environmental Exchange

President Bush Discusses Global Climate Change (2001). Retrieved May 5, 2006 from:
<http://www.whitehouse.gov/news/releases/2001/06/20010611-2.html>

Rupert Murdoch's Speech on Carbon Neutrality (2007). Retrieved July 17, 2007 from The Australian website:

<http://www.theaustralian.news.com.au/story/0,20867,21705121-601,00.html>

Seligman, C, & Darley, J.M. (1977). Feedback as a means of decreasing residential energy consumption. *Journal of Applied Psychology*, 62(4), 363-368

Steffen, A. (2006). *World changing: A user's guide for the 21st century*. New York: Harry N.Abrams, Inc

Thorndike, E.L. (1927). The law of effect. *The American Journal of Psychology*, 39(1), 212-222

Tremlett, G. (2006). *Portugal Powers Ahead as Wind Champion*. Retrieved August 5, 2007, from The Guardian website:

http://www.guardian.co.uk/renewable/story/0,,01721294,00.html#article_continue

UNFCCC (2003). *United Nations Framework Convention on Climate Change greenhouse gas inventory*. Globalis-Indicator. Retrieved 5 May, 2007 from:

www.globalis.gvu.unu.edu/indicator.cfm?IndicatorID_199

U.S. Department of State Climate Change Fact Sheet (2005). Retrieved March 24, 2006, from <http://www.state.gov/g/oes/rls/fs/46741.htm>

Vatican to Build Solar Panel Roof (5 June 2007).

Retrieved August 8, 2007, from BBC News website:

<http://news.bbc.co.uk/2/hi/europe/6725109.stm>